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A Survey of Employment by Occupation and Industry for San Francisco

by

Ward M. Nichols
W. Morris Williams

SAN FRANCISCO UNIFIED SCHOOL DISTRICT
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San Francisco 2, California

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Superintendent of Schools

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Secretary of the Board of Education

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Foreword

A public school system just as any other community agency must, if it is to fulfill its obligation to the citizens, keep itself aware of and attuned to the needs of the community it serves. This means that as the needs of the community change the program of public education must make the adaptations necessary to meet changing conditions.

For too long a period public secondary education in the United States has been going on isolated from and insulated against the ongoing stream of community life. Students have been educated largely upon the basis of hope—hope that there would be sufficient positions open so that they might secure employment upon the completion of their education. Altogether too often the content of the program offered has not met the actual conditions of business and industry.

This study is a necessary first step in reorganizing our program of secondary education in San Francisco. When we have learned where people work, the kind of work they do, how many are employed in the various occupations and professions, and the probable future openings in these various callings we are then ready to move ahead. The content of the various courses offered must be cooperatively studied and evaluated with the assistance of representatives of these various groups. Only in this way can our program of public education be kept alert to changing needs and conditions.

Secondary school administrators and guidance personnel will find in this study much that will be of assistance to them in planning programs and advising their students.

Great commendation and appreciation are due Ward Nichols and Morris Williams for this significant contribution to public secondary education in San Francisco which they have made with the cooperation of so many of their co-workers and interested laymen of the community.

Herbert C. Clish

Superintendent of Schools

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Preface

Occupational surveys have been conducted by government, industry, labor, and the schools of the country for a wide variety of reasons. Some were made in a search for manpower to staff war production plants in critical need of personnel; some to determine the probability of finding qualified workers in a given city, in the event a manufacturing plant should be established there; some to determine wage scales, both hourly and yearly, for use in wage negotiations; and others for use in making the guidance program of the schools more effective, and the curricula of the schools more responsive to community needs.

No one type of survey has served all the needs of all parties. Some have been restricted to a study of a specific group of occupations. Others have attempted a greater task than the time, personnel, or finances warranted, with the result that, in some cases, the findings have been less valid or useful than intended.

The present survey has been made with the primary purpose in mind of discovering where people work, what work they do, the numbers of people who do these things in these places, and the distribution of probable future employment. This information has been sought primarily for school purposes, but, as the investigation progressed, we found more and more evidence that others would find it useful. We have approached the study with no preconceived ideas as to what the findings should be, and the findings have been arrived at in an unbiased fashion.

Throughout the country the surveys which have been most used and most useful have been those in which large segments of the community participated. This survey has been no exception in that regard. From time to time, in the body of the report, reference will be made to source materials or persons, but we wish to make special acknowledgment to those who have been key people in the project.

The policy-planning of the survey was headed by Superintendent Herbert C. Clish, aided by a committee from his administrative staff, consisting of Associate Superintendents Watt A. Long and John F. Brady; Assistant Superintendents O. D. Adams, adult and vocational education, E. J. Cummings, secondary education, Harold Spears, elementary education but serving, at the time of the survey, as Coordinator of Curriculum, and R. J. Stoffer, buildings and grounds, but serving as Coordinator of Vocational Education at the time of the survey; Coordinators John L. Roberts, child welfare services, and Edward H. Redford, adult education; Director Lillie L. Bowman, Bureau of Research; and A. L. Morse, principal, Mission High School, who, at the time of the survey, was director, Bureau of Attendance. Each of these has contributed in his own way to the questions of policy direction and progress. Their participation both in their official capacities and in the personal encouragement they extended to us is much appreciated.

One of the major contributions, of course, was the development of a suitable method by Clark N. Robinson and Robert E. Swenson in their doctoral dissertation submitted to the School of Education at Stanford University. Dr. H. B. McDaniel of Stanford University was kind enough to meet with O. D. Adams and others to suggest procedures and techniques of conducting the study and, later, to give constructive criticism on some of the early progress. M. I. Gershenson, chief of the Division of Labor Statistics and Research of

the State Department of Industrial Relations, stimulated the development of the technique used and encouraged this first use of the new instrument of research.

We are particularly indebted to Margaret Thal-Larsen, labor market analyst of the California State Employment Service, and to her assistant, Elizabeth Robinson, for their contribution in preparing employment figures by industry. A great amount of work on their part was necessary in order to distribute workers according to 1940 United States Census classifications, a grouping not normally used by the employment service.

In attempting to plot industrial trends for the city, Van Beuren Stanbery, Western representative, Area Development, United States Department of Commerce, furnished many suggestions and ideas. He has developed, through his interest in this survey, a technique for estimating the magnitude of the commuter group of workers and, no doubt, will prepare a technical paper on this subject for use in other sections of the country.

After a certain amount of preliminary work had been done, an attempt had to be made to validate the method by verifying occupational totals with those persons presumed to be best informed about the occupation in question. George W. Johns, then president of the San Francisco Board of Education, and Superintendent Herbert C. Clish conferred with the late John A. O'Connell, secretary of the San Francisco Labor Council. As a result of that conference, the unanimous endorsement of the project by the San Francisco Labor Council was secured. Later, in a public meeting, John F. Shelley of the American Federation of Labor and J. E. Jeffery, speaking for Paul Schnur of the Congress of Industrial Organizations, both endorsed the survey and offered the cooperation of their organizations.

For those occupations not associated with organized labor, representatives of professional societies, state and local licensing boards, employment services, and others were consulted.

It is impossible to cite the many evidences of cooperation and interest extended to us, but the following people are among those who were particularly helpful in the validation of the occupational data:

Ambrose, W. Clement
American Institute of Architects

Arne, Roy
Board of Social Work Examiners

Bailey, Joseph P.
Allied Printing Trades Council

Brown, Robert D.
San Francisco-Oakland Newspaper Guild

Callahan, John
American Institute of Chemical Engineers

Cameron, Mary
California State Board of Nurse Examiners

Cook, George M.
American Chemical Society

Cook, Newton D.
Engineering Societies Personnel Service

Del Carlo, Daniel F.
San Francisco Building and Construction Trades Council

Dolen, Kathleen
San Francisco Civil Service Commission

Dunn, E. L.
Bakers' Union Local #24

Ford, Lawrence J.
Division of Apprenticeship Standards
State of California
Department of Industrial
Relations

Freeman, Richard B.
San Francisco Museum of Art

Gates, Charles
Brotherhood of Locomotive
Engineers and Firemen

Gilligan, Steve
Joint Council of Teamsters
American Federation of Labor

Gnierich, Walter
Northern California Retail Druggists
Association

Greaves, George
National Broadcasting Company

Isaksen, M. C.
Barbers Union Local #148

Johnson, P. C.
Pacific Telephone and Telegraph
Company, San Francisco

Kane, Joseph Henry
Pharmacists' Local #838

Landram, H. H.
San Francisco Council of Churches

Lassiter, Ray
American Federation of Labor

Liebscher, Mrs. W.
San Francisco County Nurses
Association

McCabe, Merwyn L.
Don Lee Broadcasting System

McKeon, W. J.
Automotive Trades Council

O'Dwyer, Fred
United States Post Office

Pinsky, Paul
Congress of Industrial Organizations

Popert, William H.
American Institute of Steel
Construction, Incorporated

Renne, J. E.
American Society of Civil Engineers

Rosenfield, Allan
Congress of Industrial Organizations

Ryan, Dane
District Council of Carpenters

St. Peters, John A.
Local Joint Executive Board of
Culinary Workers and Bartenders

Saph, A. V.
California State Board of Civil
Engineers Examiners

Schikeie, H. G.
Architect

Sullivan, Nealie
San Francisco Art Association

Taylor, Fred
Bureau of Professional and
Vocational Standards, State of
California

Tilles, Abe
American Institute of Electrical
Engineers

Travis, Charles S.
American Society of Veterinarians

Williams, Joseph W.
Board of Medical Examiners of the
State of California

Wisser, Edward
American Institute of Mining and
Metallurgical Engineers

Wynn, Al T.
Bay Cities Metal Trades Council

Young, Roland W.
District Council of Painters

Ze Lonka, Michael
Beauticians Union Local #12

In addition to these persons who have assisted in the validation, many others have made contributions of various kinds, each of which we are happy to acknowledge. These include: George L. Stulken, manager of the San Francisco Industrial Office, and May P. Carmody, manager of the Junior Division, California State Employment Service; Harold Belloc, chairman of the Employment Sub-Committee of the Industrial Committee, San Francisco Junior Chamber of Commerce; Ralph Koerber, director of research, and L. H. Holland, assistant director of the Industrial Department, San Francisco Chamber of Commerce; F. S. Bowen of the National Office Management Association; William H. Smith, research director, San Francisco Employers' Council; Donald E. Kitch, chief, Bureau of Occupational Information, and William H. McCreary, special supervisor of vocational education, State Department of Education; George Duggar of the San Francisco Department of City Planning; Ralph Nelson, Secretary-actuary, San Francisco Municipal Employees Retirement System; Charles Torok, actuary, Metropolitan Life Insurance Company; Lillian Alexander, occupational specialist for the Veterans Administration; and B. G. Arendt, Research Department, Wells Fargo Bank and Union Trust Company.

Related studies have been carried on by Alice C. Castro of the City College of San Francisco, and by Joseph M. Jacobsen of the Veterans Counseling Center, San Francisco Unified School District, concerning the occupational goals of high school and of City College students. Mr. Jacobsen also has prepared a handbook listing institutions offering occupational training in, and adjacent to, San Francisco. Others within the school department to whom a word of appreciation is due are Dr. J. Paul Mohr, vice-president, and Dr. F. Grant Marsh, head counselor of the City College of San Francisco; Edgar S. Anderson, principal, and Jens Boysen, teacher, Samuel Gompers Trades School; Joseph C. Clisham, coordinator of metal trades; George A. Mullany of the City College of San Francisco; Charles A. Barker, director of industrial arts, and Robert F. Gray, principal, Mission Adult School. We were given much valuable assistance in the preparation of Chapter V by Waddington Blair, counselor at the City College of San Francisco, who prepared the discussion of the Clerical, Sales, and Kindred Occupations. For her assistance in the typing of the finished copy, the authors are most grateful to Alice Cramer.

Dr. Edward H. Redford has been an interested and constructive critic of this study from its inception. His helpful suggestions and particularly his generosity in reading critically this manuscript are much appreciated. Dr. Iona B. Logie also has been generous with her time in reading this text.

To all these people and to many others who have been interested and helpful in this study, our sincere thanks are extended. It is our feeling that many of the virtues there may be in this report are due to the encouragement and stimulation of those named above—and that any faults in it should be attributed to us.

WARD M. NICHOLS
Coordinator, Veterans Counseling Service

W. MORRIS WILLIAMS
Supervisor, Audio-Visual Education

Chapter I

Introduction

The San Francisco community occupational survey began when Dr. Herbert C. Clish, superintendent of schools, called a meeting of representative members of the administrative staff for the purpose of considering the possible needs, purposes, and methods of making such a survey. It had been felt for some time that some of the opinions and questions in the minds of the staff might be clarified and resolved if recent dependable occupational information could be secured.

The last detailed statistical information on the occupational distribution pattern for San Francisco was the *Sixteenth Census of the United States, 1940,* which actually reported on a March week in 1939. This was, of course, a very clear and useful picture for that year, but there was some possibility that tremendous dislocations and changes in the industrial and business activity of the community might have been brought about by the war, and no one was in a position to know whether the community's activities were reverting to what might be called "normal." After some discussion, this group agreed that if time and finances permitted, some sort of survey of occupations in San Francisco was desirable. Specifically, it was hoped that such a survey might provide the following information:

1. Material needed for the guidance program in helping San Francisco youth make a satisfactory entry into the working world.
2. Valid background for general curriculum planning, both for possible revision of existing practices and as a starting point for the institution of new offerings in the curriculum.

In examining what other communities have done, it became clear that occupational surveys have had a multitude of purposes. The two most common are:

1. To secure vocational information as the basis of vocational guidance for individual students, or
2. To secure data for use in planning or revising the curriculum which is to prepare individual workers to take a place in the working community.

Surveys have been made also to secure information for the immediate placement of young workers, to further friendly relations between the schools and the business community, to highlight changes in the occupational distribution of workers resulting from shifts in the manufacturing or the business conditions of the area, or to gain specific information about a limited number of related occupations.

Various methods for gathering data were brought forth in the discussions of the committee. All were variations of one or the other of two approaches. The first is the census-type survey, in which data are requested directly from the individual, or from a firm or business establishment—a survey of primary data. The second method uses statistical data relative to occupations and industry, data which are currently available from agencies charged with responsibility for the continuous and orderly gathering of occupational and employment information—a statistical analysis of data from secondary sources.

The census-type survey has been done frequently by other cities. In some communities the census-type survey has much to recommend it. An entire community can be covered at a reasonable cost by an actual house-to-house canvass performed by the teaching staff, sometimes with the aid of secondary school students. This method has been utilized successfully, for example, by the City of Stockton, California. In larger communities, even when school personnel is used, this type of survey has been found to be exorbitantly expensive in time and in money. In cities such as Cincinnati and Baltimore, it has been found necessary to make only a sampling by sending questionnaires to selected employers.

The questionnaire method has several obvious disadvantages. Many business men have been subjected to all manner of questionnaires during the past several years, and there are some who look upon such a survey as another intervention of government in business. Research students using the questionnaire technique have discovered that a return of about thirty per cent should be considered satisfactory. In an attempt to solve this problem, many communities have used a staff to make follow-up inquiries on those firms which failed to respond. This procedure, of course, has necessitated the careful training of a staff of interviewers, an expensive procedure in itself.

Furthermore, in either of the two methods just described, replies to interviewers or to questionnaires will have some degree of unreliability because of the difference in definition of terms that exists between employers and others not accustomed to dealing with census classifications, occupational titles, and industry terminology. For example, filling station operators might be classified as sales people by some, or as operatives by others. A secretary might be classified as one who (a) is sufficiently familiar with her employer's affairs to handle certain of them in his absence and to reply to his correspondence or, (b) one who writes and transcribes shorthand notes, or (c) one who types and files correspondence. The same title might be applied to all three by different individuals. If the span of time required for gathering these data is lengthy, the continual shifting of individuals from one occupation to another may add another factor of unreliability to the results.

The foregoing difficulties made the committee reluctant to utilize the expensive, time-consuming methods commonly used in the census-type survey. It is known that many local, state, and national agencies are constantly gathering information about workers, business, and general employment trends. Surely there must exist some way of using the material gathered by agencies set up to perform such a service. It seemed inappropriate, therefore, to those planning the survey that a school district should have to spend the time and money required to secure data which already might have been gathered and which, when analyzed, could without doubt be used and which is needed by many other community agencies. Investigation revealed that the State Employment Service, the United States Department of Commerce, the San Francisco Planning Commission, and the Division of Labor Statistics and Research of the Department of Industrial Relations of the State of California, all had immensely valuable information regarding the occupational distribution of workers in San Francisco. Furthermore, in the spring of 1947, Clark N. Robinson and Robert E. Swenson had presented a doctoral dissertation to Stanford University on *A Method of Obtaining Occupational Information of*

Value to the School.[19] Their method utilized a careful analysis of those portions of the United States Census publications which present complete occupational distribution tables for cities of 250,000 or more in 1940. It was apparent at once that, if from time to time one could secure figures for total employment-by-industry for a city of this size, the application of this method or technique would then result in accurate information on occupational distribution.

As a result of its discussions, the policy committee decided to embark on the project and to use the method developed in the Robinson-Swenson dissertation. Although the method had been examined and approved by students of the labor market and by statisticians in the area, the group recognized that, since the San Francisco project would constitute the first practical employment of the technique, there would be advantage in taking time for special validating and verifying investigations as the survey proceeded. If the method should work out as expected, and as refinements developed in progress were incorporated in the final method, the San Francisco School Department would then possess a method which could be utilized from time to time for obtaining current occupational information at very small cost.

The survey technique chosen has several points in its favor:

1. It can be carried out at relatively minor expense to the district.
2. The number of persons required for the work is fewer than in the census-type technique.
3. The results can be obtained much more quickly than through use of the census-type technique.
4. It provides the school department with an opportunity to reach leaders in each of the principal industries of the city and to obtain their suggestions relative to the training of students for entry into the business community.
5. The technique permits repeated surveys based on succeeding statistical data issued by the California State Employment Service.

It having been determined that the occupational survey should be conducted along the lines of a statistical analysis by industry and occupation, the writers were released from their regular assignments in the school department and directed to conduct the investigation.

Several weeks were devoted to acquiring familiarity with all the implications of this new research tool. Use of such an instrument demands some awareness of the census-taking procedure and the errors and strengths inherent in that process. In addition, it requires close acquaintance with sources of employment and industrial data, and a wide search of possible sources to assure that no important data be ignored.

After some preliminary study of sources and of the method had been made, the California State Employment Service was requested to assist in the project by distributing total San Francisco employment into industrial classifications used by the United States Census. Upon receipt of these data, the writers prepared a tentative occupational distribution of those employed.

After the project had been under way for two months, this preliminary report of progress was made to Superintendent Clish. He desired the com-

[19] This and subsequent reference numbers refer to corresponding numbers to be found in the bibliography.

ment and constructive criticism of the survey and its goals by leaders in business, labor, industry, and government. In order to obtain such assistance from community leaders, the Superintendent decided to hold a meeting at which the purposes and preliminary findings of the occupational survey might be discussed.

From a roster of organizations issued by the San Francisco Chamber of Commerce, a list of representative citizens was prepared. This list could not be all-inclusive but was believed to include a representation of the many active groups concerned with city affairs. The organizations invited to send representatives to the meeting are listed in Appendix A.

George W. Johns, then president of the San Francisco Board of Education, extended a welcome to those in attendance, expressed his appreciation for their interest and participation, and introduced the superintendent of schools, Dr. Herbert C. Clish.

Dr. Clish emphasized the point of view that the work of the schools should be a matter of vital concern to lay members of a community as well as to the professional educator, that joint planning by layman and professional is most likely to produce schools expressive of the educational philosophy of the community.

The danger of carrying out an educational program without relating it to the occupational and industrial composition of the city was emphasized. Dr. Clish asked for constructive criticism of the vocational preparation being given San Francisco students. If the school curriculum could be so adjusted as to provide vocational preparation which would be functional for San Francisco students, then the problems faced by the guidance worker would be made less difficult.

Some criticism was voiced of the achievements of graduates in spelling and arithmetic and of the general address and deportment of new workers. A record of all the suggestions was kept and will be used in future planning involving advisory committees, job preparation, and guidance problems.

Mr. Bowen, chairman of the educational committee of the National Office Management Association in this city, described the project on which his group is working. It is conducting a survey among office managers attempting to identify and describe the qualitative aspects of clerical employment. This report will discuss such matters as the preferred ages in various jobs, previous experience required, type and extent of education desired, personal characteristics necessary, and other phases of preparation for such jobs. It should be mentioned, incidentally, that inasmuch as the National Office Management Association is sponsoring that investigation, it will concern itself with the type of clerical work to be found in offices large enough to employ an office manager. Such jobs, in the interest of efficiency, will tend to be somewhat specialized and to require higher-level skills in specific tasks than would be the case in small offices where a somewhat lesser degree of skill in certain tasks would be acceptable, provided that a wide variety of clerical tasks could be handled by a single person.

This investigation now under way by the National Office Management Association will make a valuable contribution to our knowledge of the qualities which employers seek in graduates who come to them for employment. The fine attitude of this group in attempting to assist students to an under-

standing of the qualifications demanded of workers in the various clerical jobs is to be commended, and it is hoped that similar groups will provide such information in other areas.

During the validation process which followed this meeting, many of the employers approached were most helpful in their suggestions concerning the needs of San Francisco graduates in search of their first jobs. Of course, the time-honored virtues of honesty, promptness, accuracy, cleanliness, alertness, dependability, courtesy, industry, neatness, initiative and others were frequently mentioned as being traits desirable in new (or old) employees. These are qualifications which any high school senior would list if he were asked about desirable personality traits among job applicants.

More specific suggestions relative to the vocational preparation of graduates were made in the most friendly manner. Spelling, arithmetic, grammar, vocabulary, speech, shorthand, and typing skills were among those most frequently mentioned as needing additional emphasis in the schools. Many of those visited commented on the lack of neatness in the dress and grooming of job applicants.

Boys frequently apply for jobs while wearing jeans, or without a necktie, or dressed in sport clothes unsuitable for the position for which they are applying. Needing haircuts, shoe shines, and some attention to their fingernails, many boys do not receive consideration by employers, even though otherwise qualified. Careless speech habits and the failure to observe ordinary courtesies and good manners keep other applicants from obtaining the opportunities they seek.

Many girls applying for jobs have been surprised to learn that acceptable dress at school is not always acceptable in a business office. Excessive make-up is not only poor taste but poor business, for employers do not want such extremes in their employees. Careful grooming, clothing in quiet good taste, and courtesy and good manners are valuable attributes for any girl seeking her first job.

Employers and employment offices have made similar comments so frequently that we must regard these as rather common deficiencies among graduates seeking their first jobs. Many, of course, have learned that employers consider these things important and have been successful in securing the position they seek. Others have had to learn the hard way, by repeated failure to land the job, or by failure to hold the job if once secured.

Employers, too, have some things to learn about hiring graduates. Many of them have hired on the application alone, without making inquiry of the school concerning the training and abilities of the applicant-graduate. They have not verified the applicants' statements concerning the training they have had, and find themselves employing young people who claim training in commercial subjects but who actually may have had very little training and little success in the training they have had. As a result of sad experiences of this sort, some employers are reluctant now to employ inexperienced workers even for elementary jobs, and have been quite critical of the product of the schools because they have not secured workers with adequate or appropriate training.

At the meeting to which reference was made in earlier paragraphs, O. D. Adams, Assistant Superintendent in charge of adult and vocational education, spoke on this point as follows: "I want to make one observation about the hiring of young people who claim to be typists and who come to you from

the various high schools of the city. We have a close working relationship with the California State Employment Service, and I wish employers would give Mrs. May Carmody (manager, Junior Division, California State Employment Service) an opportunity to suggest competent young people to you, rather than hire some who say they have had three or four years of commercial training. You hire them and then discover they can't type. I think perhaps some of the difficulty lies in the fact that these people are hired without much of a recommendation except their own say-so. If you have questions about the young people who come to you from the vocational schools or high schools, I think we can help you if you will direct requests for applicants to the Junior Division of the California State Employment Service, and requests for recommendations to the department of the schools which trained those applicants."

One important outcome of the occupational survey was noticeable immediately. Nearly every person visited expressed his pleasure that the School Department was making such a survey. Much friendly interest in the schools was displayed, and many expressed themselves as being glad to see such evidences of the efforts of the School Department to be practical in the planning of its offering. Some took the opportunity to speak cordially about their experiences with the schools or with individual teachers or administrators.

These visits to business and industry convinced the writers that there is an active, wide, and friendly interest in the work of the schools, an interest which should be utilized in the manner suggested by Dr. Clish, for the benefit of the students in the San Francisco schools.

Chapter II

The Technique of the Survey

Because this account represents the first attempt to use this technique, considerable attention is given in Chapters II and III to the mechanics involved in carrying out the survey. Some persons will want to study the technique with a view to its adaptability to other communities. Others may find that a reading of these two chapters will be of assistance to them in attempting to make their own evaluation of the findings of this report. For reasons cited in Chapter I, the Robinson-Swenson method of obtaining occupational information was selected. A brief exposition of the procedures involved is necessary at this point.

After receiving the encouragement and counsel of O. D. Adams, assistant superintendent of adult and vocational education, and of M. I. Gershenson, chief, Division of Labor Statistics and Research of the State Department of Labor Relations, Robinson and Swenson went to work on the problem of developing a method of obtaining occupational information of value to the schools.

In attempting a statistical analysis of employment, the investigators were confronted with a great mass of material—gathered by government, industry, and labor. Most of this information is industry-centered; that is, it reports employment by industry rather than by occupation. Data so organized are relatively easy to obtain because they can be taken, without analysis, from payroll reports. Such data, however, give little insight into the occupational components of the employment reported. They show, for example, 10,000 workers in Wholesale Trade without reporting the occupations in which those workers are engaged.

The United States Census reports an occupational breakdown of the nation, of each state, and of certain of the larger cities of each state. Occupation-centered data show the distribution of workers among occupations but give no information concerning the industries in which these workers are employed. For example, the total of "5,000 carpenters" does not indicate in which industries these men work.

During the war-time shortage of workers, the Bureau of the Census recast its data on the 1940 Census into a framework which showed, for the country as a whole, the distribution of workers by occupation and industry. This was the first time that mass data showing, for example, the number of carpenters in each industry, as well as the total number of carpenters in all industries, were published. This recasting of census data was made in order to assist in determining the effect of alternate Selective Service policies with respect to occupational deferment, and to determine the number of workers with essential skills which would be made available through conversion or curtailment of non-essential industrial activities.

After a careful investigation into the nature of the data published by various agencies, these researchers determined that the best source of information, for their purpose, was the United States Census. The information in it was gathered in March, 1940, however, and reported the activities of workers during the corresponding week of 1939. The California State Employment Service, it was discovered, planned to issue quarterly reports of employment

by industry on a current basis. Such reports would provide the desired current information concerning employment if in some way the occupational components of the industry totals could be derived.

At this point, these investigators must have considered the use of the information contained in Census Bulletin, Series P-14, No. 11. (25), to which reference was made in an earlier paragraph of this chapter. They could have reduced the occupational components of each industry to percentages of the total employment within the individual industry, applied those percentages to current Employment Service totals by industry, and thus have derived an approximation of the number of workers in each occupation for a given industry. Such a procedure might have given sufficiently accurate current estimates for the country as a whole, but even casual observation pointed out that San Francisco occupation-industry characteristics would vary widely from a nation-wide average. The relationships in that bulletin did not reflect San Francisco's employment picture.

After studying their problem, in conjunction with the data bearing upon it, Robinson and Swenson developed a method of attack which minimized the effect of the national average approach, while still making use of its essential values. The technique which was finally developed is presented, in its minimum essentials, in the following paragraphs.

The United States Census (16) for 1940 reports workers in each industry in San Francisco under eight occupational categories, as illustrated in Table 1 covering Wholesale Trade.

TABLE 1

Distribution of Workers in Wholesale Trade into Eight Occupational Categories in San Francisco—1940

	WORKERS	PER CENT
1. Professional and Semiprofessional Workers	139	.97
2. Proprietors, Managers, and Officials	2,801	19.53
3. Clerical, Sales, and Kindred Workers	8,426	58.76
4. Craftsmen and Kindred Workers	399	2.78
5. Operatives and Kindred Workers	1,528	10.65
6. Protective Service Workers	30	.21
7. Service Workers	117	.82
8. Laborers	869	6.06
9. Occupation not reported	31	.22
	14,340	100.00

The numbers reported in Table 1 were converted to ratios found by dividing the number in a particular category by the total in the industry. Thus, the 8,426 workers reported as Clerical, Sales, and Kindred Workers, represent 58.76 per cent of the total employed in Wholesale Trade in San Francisco in 1940.

Similar computations were made for each of the 67 San Francisco industries reported by the 1940 Census, and a percentage distribution of workers into the eight occupational categories was computed for each industry. This distribution in itself is particularly valuable in that it reflects the unusual characteristics of San Francisco's occupational pattern. This is demonstrated in

Table 2, which reports data from the Robinson-Swenson study for the Railway and Railway Express industry as an example, and compares the occupational pattern of this industry in San Francisco, in California, and in the United States.

TABLE 2

Percentage Distribution of Occupation-Groups in the Railway and Railway Express Industry for San Francisco, for California, and for the United States—1940 (19)

	SAN FRANCISCO PER CENT	CALIFORNIA PER CENT	UNITED STATES PER CENT
1. Professional and Semiprofessional Workers	2	1	1
2. Proprietors, Managers, and Officials	7	7	7
3. Clerical, Sales, and Kindred Workers	40	21	20
4. Craftsmen and Kindred Workers	19	28	29
5. Operatives and Kindred Workers	13	19	18
6. Protective Service Workers	2	1	2
7. Service Workers	4	5	3
8. Laborers	13	18	20
	100	100	100

Such a comparison emphasizes the ways in which San Francisco's occupational pattern differs from the state and nation even within the same industry. The high proportion of clerical workers in this industry in San Francisco as compared with the number in the state and nation, obviously is caused by the location of general offices in this city.

This is a very common characteristic of the occupational organization of most industries in San Francisco. Some industries do not show such a large preponderance of clerical workers, but 75 per cent of the industries in San Francisco do show a larger proportion of clerical workers than the same industries on a national or statewide basis. This fact indicates that San Francisco is a "headquarters" city, providing the financial and management function necessary to service the surrounding area.

With this method of setting up control points for each industry—by establishing the ratio of workers in each occupational category of an industry to the total in that industry—the predominance of the San Francisco occupational pattern was assured in the final picture, which would show the number of workers in specific occupations as well as the number of workers in occupational categories.

Because educators need information about specific occupations, finer breakdowns by specific occupation rather than by occupational category were desired. As no data were available relative to the distribution of workers in specific occupations—*i.e.*, carpenter, typist, draftsman, etc., by industry for San Francisco— Robinson and Swenson had recourse to United States Census Bulletin Series P-14, No. 11. This showed, on a national basis, not only the number of workers in each occupational category by industry, but also the

number of workers in specific occupations within the category. A portion of the figures for Wholesale Trade is reproduced for illustrative purposes.

TABLE 3

Occupational Distribution of Professional and Semiprofessional Workers in Wholesale Trade in the United States 1940 (25)

	WORKERS	PER CENT
Architects	60	.59
Artists, and Art Teachers	280	2.78
Authors, Editors, and Reporters	160	1.58
Chemists, Assayers, and Metallurgists	820	8.10
Civil Engineers	360	3.56
Electrical Engineers	280	2.77
Mechanical Engineers	2,020	19.96
Other Technical Engineers	340	3.36
Dentists and Osteopaths	20	.20
Lawyers and Judges	300	2.96
Librarians	20	.20
Pharmacists	340	3.36
Physicians and Surgeons	20	.20
Teachers	140	1.38
Trained Nurses	60	.59
Veterinarians	40	.40
Other Professional Workers	1,040	10.28
Designers	200	1.98
Draftsmen	800	7.91
Other Semiprofessional Workers	2,820	27.87
	10,120	100.03

Using the numbers of workers shown in Table 3, Robinson and Swenson converted the numbers in the component occupations to ratios as shown in the right-hand column of this table. Thus, 19.96 per cent of all Professional and Semiprofessional Workers in Wholesale Trade in the United States are Mechanical Engineers.

Two sets of data were now at hand which could be related to each other in order to derive information not heretofore available. Table 1 shows the distribution of workers in San Francisco's Wholesale Trade into occupational categories, while Table 3 shows the distribution into specific occupations of Professional and Semiprofessional Workers in Wholesale Trade in the nation.

The next step in attempting to derive, from the above sources, the number of workers in a specific occupation in San Francisco was to break down the occupational category percentages shown in Table 1 (which table is merely illustrative of the process). The reader will note (from Table 1) that .97 per cent of the workers in Wholesale Trade are Professional and Semiprofessional Workers in San Francisco, and that this category is broken down nationally into the specific occupations and proportions shown in Table 3. Thus, if 19.96 per cent (Mechanical Engineers, Table 3) of .97 per cent (Professional and Semiprofessional Workers, Table 1) is computed, we find that, in San Francisco, .19 per cent of workers in Wholesale Trade are Mechanical En-

gineers. By treating similarly the other occupations in Table 3; *i.e.*, multiplying each by .97 per cent, the following ratios of the specific occupations to total employment in Wholesale Trade in San Francisco are found.

TABLE 4

Percentage Distribution of Professional and Semiprofessional Workers in Wholesale Trade in San Francisco—1940. (Derived)

	PER CENT
Architects	.0057
Artists and Art Teachers	.0269
Authors, Editors, and Reporters	.0153
Chemists, Assayers, and Metallurgists	.0785
Civil Engineers	.0345
Electrical Engineers	.0269
Mechanical Engineers	.1936
Other Mechanical Engineers	.0326
Dentists and Osteopaths	.0019
Lawyers and Judges	.0287
Librarians	.0019
Pharmacists	.0326
Physicians and Surgeons	.0019
Teachers	.0134
Trained Nurses	.0057
Veterinarians	.0039
Other Professional Workers	.0997
Designers	.0192
Draftsmen	.0767
Other Semiprofessional Workers	.2703
	.97

This table illustrates, if we round the last two decimal figures, that the .97 per cent of Professional and Semiprofessional Workers in San Francisco's Wholesale Trade breaks down into the occupational titles listed.

Each of the occupational category ratios for Wholesale Trade (shown in Table 1) was then analyzed according to the breakdown of the corresponding category nationally. These observations, therefore, should be noted:

1. Every occupational category ratio, or total, is representative of San Francisco's pattern; it in no way reflects national averages.
2. The breakdown into specific occupations within a particular occupational category is affected by national averages.

The foregoing description of the technique involved is necessarily brief, but will give the interested reader an insight into the method. The illustrations used show only the steps actually performed in establishing the set of ratios applicable to the occupations in the Professional and Semiprofessional group of workers in Wholesale Trade in San Francisco. One should bear in mind that similar steps had to be performed with each of the eight occupational categories in order to establish ratios for the entire list of occupations found in that industry. The whole operation then had to be repeated for each of the

67 industries covered. One can readily understand that tremendous numbers of mathematical operations were performed in order to establish a base from which to attempt analyses of industry totals.

Such ratios were computed, nevertheless, for all the occupational titles and industries reported by the census. Some grouping of both was done because it was believed that numbers involved in San Francisco, in certain industries, were too small to justify separate treatment, or that sufficient similarity existed in the occupational pattern of the industries grouped to justify the grouping. For instance, the census data report Mining under four classifications—Coal Mining, Crude Petroleum and Natural Gas Production, Metal Mining, and Other Mines and Quarries (Sand and Gravel, Stone, Miscellaneous). Each of these four industries could have been analyzed and a set of occupational ratios established but, since the total employment in all Mining activities in San Francisco is reported as only 600, the point of view was taken that there is not sufficient employment in these industries in San Francisco, nor sufficient variance between them, to justify a separate treatment for each. Wherever such groupings have been made, specific mention will be given to that fact, and the nature of the grouping reported.

For those who may wish to undertake a similar study in other cities the foregoing explanation may be summarized as follows:

1. From Census Table 20, "Major Occupation-Group of Employed Persons (Except on Public Emergency Work), by Industry and Sex, for the State, and for Cities of 250,000 or More; 1940" (16). Compute the per cent distribution of occupational categories by industry for the locality being studied.

2. From the census bulletin on population, Series P-14, No. 11, Table 19, "Occupation of Employed Persons (Except on Emergency Work), by Industry and Sex, for the United States: March 1940" (25), prepare a ratio-analysis of each occupational category in each industry—by finding the relationship of the number of workers in a given occupation to the number of workers in the occupational category.

3. Multiply the ratio which each occupational category bears to the total employment in the industry (as found in Step 1) by the ratios made up from the component occupations of that occupational category (as found in Step 2).

4. Request the state department of employment to recast its most recent data, relative to the industrial distribution of workers, into the industrial classifications shown by the Sixteenth Census. There are some differences between the definitions used in the census and those in use by the California State Employment Service, and, therefore, the need to distribute figures according to the same definitions used in the census should be stressed.

5. Apply the ratios for each industry, as derived in Step 3, to the total number of workers in that industry.

The result of these operations should be a chart showing the occupational distribution of employed persons, by industry, for the locality being studied.

These are the initial operations performed in the San Francisco survey of occupations, Chart I, Occupation-Industry Ratios for San Francisco—(Derived), shows the ratios derived in Step 3 after they had been adjusted as a result of validation efforts. Chart II, Occupations of Employed Persons, in Each Industry, for San Francisco—1947 (Derived), reports the numbers derived as a result of the application of the ratios in Chart I to employment-by-industry figures furnished by the California State Employment Service. The validation process, which resulted in some changes in the ratios and numbers computed by the purely mathematical process described above, will be explained in Chapter III.

In the use of this method, there are some inherent problems which should be discussed.

The importance of comparable industrial classifications already has been mentioned.

The question of occupational definitions also is always a problem in the taking of a census. Thousands of enumerators are given a period of training on how to conduct the inquiries upon which the census is based. Elaborate handbooks are prepared and issued, which explain the classification of all industries into 132 industry groups, and some 25,000 occupations into 451 titles. These 451 occupational titles have been reduced, through grouping in the census report or in this study, to 87, but these 87 include all the workers either under a specific occupational title or in one of the Other Workers groups within each occupational category. Even though the person questioned by the census enumerator properly describes his or her job, it is quite understandable that the enumerator may have some difficulty in classifying such jobs as "mycologist," a biologist specializing in fungus growth, or "mooner," a laborer in leather manufacturing who scrapes hides to prepare them for further treatment.

There is a natural tendency, furthermore, for the person questioned to place himself as high in the occupational scale as possible. Thus, the apprentice electrician may report himself, not as an apprentice, but as an electrician; or the radio technician may call himself an electrical engineer or radio engineer. The worker may actually possess the skills required in the other job, but should report himself as an apprentice or technician according to the requirements of the job held. Investigators, therefore, should examine the data carefully to attempt to discover instances of improper classification. In brief, the shortcomings of the census are reflected in this technique, but, conversely, the merits of the census in providing an organized, systematized body of data also are present. Most of all, it should be remembered that whatever its enumeration problems may be, the census is the most adequate survey of its type known, and that the same problems confront the person who would make a local occupational survey by an enumeration of the census type. Furthermore, less experienced investigators and fewer resources are usually available for such local enumerations, so that there is some reason to doubt that any greater accuracy, all problems considered, would be secured by such a method than by this statistical approach.

The basic assumption on which this technique rests is that the occupational distribution of workers within a given industry tends to change only gradually. This means that, although the total numbers employed in an industry

may fluctuate widely from time to time, the proportion of workers in the different occupations tends to remain relatively constant. In other words, a reduction of 100 workers in Wholesale Trade in San Francisco would mean (according to Table 1) a reduction of approximately 1 professional worker; 20 proprietors, managers, or officials; 59 clerical and sales workers; 3 craftsmen; 11 operatives, and so on. For small industries or those being newly established in the city, such proportions would be less reliable. They do not necessarily apply to individual firms within an industry.

Technological changes adopted within an industry since the 1940 Census would have some effect on the reliability of the ratios. Some technological improvements have little or no effect on the type of workers required; other improvements have an effect of this sort when they become widely adopted; and a small number of changes have immediate and widespread adoption. The investigator in this area must be alert to such changes and attempt to evaluate their effect on occupational distribution.

Two facts concerning the data should be noted. The ratios which were used in the distribution of workers into various occupations and occupational categories, being based on census data, reflect the occupational distribution of only those workers who reside in San Francisco. It should be noted also that the employment figures report total employment-by-industry, both of those who reside and work in San Francisco and those who work in San Francisco but live in Marin, Alameda, San Mateo, or other nearby counties. The California State Employment Service furnished these figures which are based on California Unemployment Insurance returns, plus other figures reported by industry.

Much study has been given to the composition and size of the commuting group of San Francisco workers, both as to its industrial and its occupational distribution. The San Francisco Department of City Planning is working on this problem and will know more when its studies have been completed. Conferences held with George Duggar of the San Francisco Department of City Planning, Van Beuren Stanbery, Western representative, Area Development, United States Department of Commerce, and Margaret Thal-Larsen, labor market analyst of the California State Employment Service, produced a number of ideas for development of figures on this problem. These experts were of the opinion, from their knowledge of pertinent data, that the industrial distribution of the commuting group of workers is not significantly different from that of resident workers.

One clue to the occupational distribution of the commuters lies in the census reports of occupational distribution in adjacent counties. Census reports, being based on residence rather than on place of work, might reveal a higher than normal concentration of workers in a particular occupational category than would be normal for that community (see Table 10, Chapter III), thus indicating possible commuters to San Francisco. Considering all the facts available, including working hours, salaries, living costs, census data, and so on there seems to be some basis for a belief that the professional and managerial occupations are represented among commuters in slightly higher proportions than are less remunerative occupations. The difference between the occupational distribution of commuters and that of residents is believed to be small and thus will not in any way invalidate the method of the survey.

In connection with the attempt to estimate the size of the commuting force of workers in San Francisco, the following data are pertinent. Reference to the 1940 Census shows that 42.3 per cent of the total population of San Francisco was employed (see Table 5, Chapter III). At the same time, only 39.6 per cent of the San Francisco-Oakland Metropolitan District population was employed, a difference in proportion employed of 2.7 per cent in favor of San Francisco. When the 1947 sample census of the San Francisco-Oakland Metropolitan District was taken in April, 1947, the relationship between the total population and the total number employed was found to be 44.8 per cent. If we assume that in 1947, as in 1940, San Francisco employed a somewhat higher proportion of its population than did the district, then we might infer that approximately 47.5 per cent of San Francisco's 1947 population is now employed.

Various estimates of San Francisco's population have been made. The State Office of Planning and Research and the California State Chamber of Commerce (12) recently estimated that San Francisco's population was approximately 785,000 exclusive of military personnel. This figure will be used in the ensuing discussion.

Let us attempt to establish the number of resident San Francisco workers in 1947. We know from the Special Census of San Francisco taken in August, 1945, (35) that 85 per cent of the population is age 14 and over. (The group, age 14 and over, is a standardized grouping used in the census in dealing with labor force and employment figures.) If we take 85 per cent of the estimated total civilian population—785,000—we find there are 667,250 persons age 14 and over in San Francisco in 1947. The sample census (9) of the San Francisco-Oakland Metropolitan District taken in April, 1947, indicates that 56 per cent of the population age 14 years and older was employed at that time. San Francisco, as distinguished from the San Francisco-Oakland Metropolitan District, normally has about 1 per cent higher proportion employed, as shown by comparison of these figures in the 1940 Census reports. This would indicate that 57 per cent of the San Francisco population age 14 and over is employed. Fifty-seven per cent of 667,250, the number of persons age 14 and over, is 380,333, the number of San Francisco residents employed. This number constitutes 48 per cent of the San Francisco population. This figure is far smaller than that reported by the California State Employment Service—467,800—total employment. We may infer that this difference is representative of the number of employed commuters to San Francisco and that it establishes the current estimate of this figure at 87,467.

Research on this problem is continuing under the leadership of the San Francisco Department of City Planning. Its studies are not yet complete but seem to indicate a commuting figure slightly smaller than this estimate. The difficulties this group is experiencing in its study are evident when we remember that commuters come to San Francisco daily by train from the Peninsula, by streetcar from outlying cities, across the Bay Bridge, by train, bus, and automobile from Alameda and Contra Costa Counties, and across the Golden Gate Bridge from Marin County by bus and automobile. Thousands of occasional visitors arrive in San Francisco daily, and an enumeration of all of these people showing the purpose of their travel is extremely difficult. We do not know what proportion of total incoming traffic represents those coming to San Francisco to work. Even if we knew that 87,467 persons came to

San Francisco each day, we would not know whether they came to work, to the theater, or to shop. The city planners deserve great credit for attempting a survey of this problem.

When ratios based on resident workers are applied to employment figures containing commuters, there may be some, as yet unmeasured effect—unmeasured because suitable techniques and adequate resources have not yet been provided. If the commuter group does affect the occupational distribution of workers, there is a possibility that the charts and tables may slightly understate the professional, managerial, and clerical and sales workers, while overstating the number of operatives, protective service workers, service workers, and laborers.

In an effort to minimize the effect of commuters on the technique, much effort was made to validate the figures on total employment by occupation. These measures are described in greater detail in the following chapter, but, in general, they resulted in remarkably close correspondence between the best estimates of the numbers employed in a particular occupation and the number established by the theoretical process which has been described. When significant differences were found, the necessary adjustments were made, but these were surprisingly few.

As with most statistical studies, relatively small numbers are not highly reliable. The figures reported should not be interpreted as exact in any sense of the word, but rather as relatively correct. We do not claim that a report of 964 workers in a given occupation means exactly 964 and not 965 or 963. Rather, it indicates that there is a reasonably large number of workers in that occupation—probably somewhere between 930 and 1,000. A figure of 25 would not be subject to such great differences; the true figure probably would be between 20 and 30. Extremely small numbers merely signify that there may be such workers in this city because such workers are found in like industries elsewhere.

Chart I shows the occupation-industry ratios for San Francisco which were derived according to the method described in this chapter. They have been adjusted to give recognition to changes which have taken place in various industries since 1940 and therefore are not solely mathematical derivations from the 1940 Census. They incorporate changes which have been made in those figures as a result of information gathered during visits with industry, labor, and professional groups.

Whenever new employment-by-industry figures are furnished by the California State Employment Service, the ratios which are shown in this chart can be applied directly to such figures and should produce reasonably accurate occupation-industry figures for employment without the need for such extensive validation as was undertaken in this first use of the method. Obviously no method should be used indefinitely without occasional validation, and when it is used again in San Francisco, extension of the validation process should be made, but it is our belief that it need not be as detailed as in this initial survey.

Chapter III

Application of Technique

As a year-round host to travelers of the world, San Francisco never fails to fascinate them and to establish in the minds of visitors a strong impression of San Francisco as a cosmopolitan metropolis. It is a city of great opportunity, tremendous wealth and incomes, and relative prosperity for all its residents. In common with other great cities of the world, it has a distinct personality.

Both population and employment of the San Francisco-Oakland Metropolitan District have increased more rapidly since 1940 than those of any other large metropolitan district of the country. The percentage of increase in the number of families has been even greater than the percentage of increase in population.

Before applying the occupation-industry ratios developed in Chart I to employment-by-industry, it might be well to examine the characteristics of San Francisco's population. Table 5 compares the population characteristics of San Francisco, the San Francisco-Oakland Metropolitan District, and California in 1940 and in 1947.

Table 5

Civilian Population Characteristics (in Thousands) of San Francisco, the San Francisco-Oakland Metropolitan District, and California—1940 and 1947.

		San Francisco		S.F.-Oakland		California	
		1940 (5)	1947 (est.)	1940 (5)	1947 (9)	1940 (5)	1947 (9, 20)
Labor force	Employed	266	N.A.	561	891	2,492	3,560*
	Per cent of population	42.3%	48.0%	39.6%	44.8%	36.2%	36.5%
	Unemployed	45	30	87	46	423	420
	Per cent of population	7.2%	3.9%	6.0%	2.3%	6.2%	4.3%
Homemakers		132	N.A.	320	462	1,546	N.A.
	Per cent of population	20.9%	—	22.6%	23.2%	22.5%	—
Others (students, children, etc.)		186	N.A.	448	591	2,413	N.A.
	Per cent of population	29.6%	—	31.6%	29.7%	35.1%	—
Civilian population		629	785	1,417	1,990	6,874	9,751

N.A.Not available.

*—Included 18 thousand telephone workers on strike.

This table points out a number of interesting facts. San Francisco has a smaller proportion of housewives to total population than either the metropolitan district or the state. This statement is subject to some interpretation because the actual number of homemakers is much larger than the numbers indicated, since by definition homemakers are those "primarily occupied with their own home housework." The thousands of young wives who are helping in the breadwinning effort are classified according to the industry and occupation in which they are employed, rather than as homemakers. The single woman who maintains an apartment or other residence also has some status as a homemaker. The average household in San Francisco is relatively small compared to households in the rest of the state, but the large number of separate households indicates that some homemaking activities are carried

on by thousands of women otherwise classified. Whatever the number may be, it is certainly large enough to emphasize the need for functional training in homemaking.

The presence of two or more wage earners in a family is a frequent occurrence in San Francisco employment figures and is reflected in the fact that the proportion of employed to population is consistently higher in San Francisco than elsewhere in the state. That the present is a period of high employment is shown by the fact that San Francisco-Oakland Metropolitan District unemployment dropped from 86,840 in April, 1940, to 46,368 in April, 1947, despite an increase in population of 39 per cent. The high proportion of employment to population, cannot be expected to continue indefinitely but can be expected to go on as long as the present shortage of goods and services exists.

San Francisco's employment-by-industry pattern is compared in Table 6 with that of the San Francisco-Oakland Metropolitan District for 1940 and 1947.

TABLE 6

Major Industrial Group of Employed Civilians 14 Years Old and Over, for San Francisco and the San Francisco-Oakland Metropolitan District—1940 and 1947

	1940 (5)				1947			
	SAN FRANCISCO MARCH		S.F.-OAKLAND MARCH		SAN FRANCISCO JULY (C.S.E.S.)		S.F.-OAKLAND APRIL (9)	
	WORKERS	PER CENT	WORKERS	PER CENT	WORKERS	PER CENT	WORKERS	PER CENT
Construction	13,751	5.3	32,770	5.9	24,000	5.1	58,167	6.6
Manufacturing	45,053	17.3	120,488	21.8	82,000	17.6	181,125	20.5
Transportation, Communications, and Utilities	30,849	11.8	63,014	11.4	68,600	14.7	105,156	11.9
Trade	68,589	26.3	128,991	23.4	134,700	28.9	210,933	23.8
Service Industries (a)	86,143	33.1	169,575	30.7	125,300	26.8	239,499	27.1
All others (b)	16,155	6.2	37,187	6.7	32,300	6.9	89,838	10.1
TOTAL	260,540	100.0	552,025	99.9	466,900	100.0	884,718	100.0

(a) Includes: Finance, Insurance and Real Estate; Business and Repair Service; Personal Service; Professional and Related Service.

(b) Includes: Agriculture, Forestry, and Fishing; Mining; Government Services (n.e.c.).*

* (n.e.c.) means not elsewhere classified.

In reading this table, it should be borne in mind that the 1940 figures for San Francisco report workers who live in San Francisco, regardless of where they work, while the 1947 figures for San Francisco include all who work in San Francisco, regardless of their residence. The table shows clearly San Francisco's importance as a wholesale and retail trade center. In 1947 nearly 29 per cent of the employed force was in trade in San Francisco as compared with nearly 24 per cent in the San Francisco-Oakland Metropolitan District. Some may feel that, considering 1940 figures, a higher proportion of workers should be found in the Construction industry. We must remember, however, that huge as the building program in San Francisco may be, the expansion in the environs of San Francisco also has been tremendous. Many skilled work-

men commute daily to construction projects in Marin, Alameda, and San Mateo Counties. It may be that part of our impression of tremendous activity results from the construction activities in the adjacent counties.

Another factor, worthy of note, is the decrease in the proportion of the population engaged in service activities, both in San Francisco and in the San Francisco-Oakland Metropolitan District. Most of this decrease is accounted for by the gradual and continual withdrawal of the domestic service worker from the employment scene and his entry into other occupations offering larger salaries or greater prestige. There has been also some decrease in the poportion of professional workers, resulting perhaps, in part at least, from the sharp reduction in the number of qualified graduates entering professional pursuits during the war years. Whatever the cause, everyone is familiar with the shortage of teachers, the crowded condition of court calendars, and the need to make medical and dental appointments far in advance.

Two more tables give us still further insight into the distinctive characteristics of San Francisco's industrial employment. Table 7 is based on the 1940 Census and reports by industry-group the number and percentage of employed workers, including military personnel, residing in San Francisco, Alameda, Contra Costa, Marin, and San Mateo Counties.

TABLE 7

Major Industry-Group of Employed Workers, Including Military Personnel Residing in San Francisco, Alameda, Contra Costa, Marin, and San Mateo Counties—1940 (5).

		SAN FRANCISCO	ALAMEDA	CONTRA COSTA	MARIN	SAN MATEO	4 COUNTIES EXCLUDING SAN FRANCISCO
Agriculture, Forestry and Fishing	workers	1,704	5,650	3,809	1,534	2,918	13,911
	per cent	.64%	3.00%	10.26%	7.11%	6.72%	4.79%
Mining	workers	468	592	147	53	69	861
	per cent	.18%	.31%	.40%	.25%	.16%	.30%
Construction	workers	13,751	11,540	2,079	1,094	3,575	18,288
	per cent	5.17%	6.13%	5.60%	5.07%	8.23%	6.30%
Manufacturing	workers	45,053	44,056	16,004	1,571	8,209	69,840
	per cent	16.95%	23.40%	43.10%	7.28%	18.90%	24.05%
Transportation, Communication and Utilities	workers	30,849	22,982	3,067	1,944	3,796	31,789
	per cent	11.60%	12.20%	8.26%	9.01%	8.74%	10.94%
Wholesale and Retail Trade	workers	68,589	41,026	4,996	3,264	8,922	58,208
	per cent	25.80%	21.79%	13.45%	15.13%	20.54%	20.04%
Finance, Insurance and Real Estate	workers	21,298	11,791	855	1,131	2,602	16,379
	per cent	8.01%	6.26%	2.30%	5.24%	5.99%	5.64%
Business and Repair Services	workers	7,668	4,996	563	476	1,182	7,217
	per cent	2.88%	2.65%	1.52%	2.21%	2.72%	2.48%
Personal Services	workers	29,232	16,460	2,029	1,863	5,377	25,729
	per cent	11.00%	8.74%	5.46%	8.64%	12.38%	8.86%
Professional and Related Services	workers	27,945	20,799	2,553	1,918	5,264	30,534
	per cent	10.51%	11.05%	6.88%	8.89%	12.12%	10.51%
Government Services (n.e.c.)	workers	19,299	8,424	1,029	6,725	1,524	17,702
	per cent	7.26%	4.47%	2.77%	31.17%	3.51%	6.09%
Total workers		265,856	188,316	37,131	21,573	43,438	290,458
Total per cent		100%	100%	100%	100%	100%	100%

This table points out the industrial characteristics of each county. San Francisco's preeminence as a center of Wholesale and Retail Trade, Finance and Insurance, Business and Repair Services may be noted. This city probably has a larger proportion of workers in Government Services (n.e.c.) than any of the other counties if the military personnel in all counties, particularly in Marin County, are excluded from the figures reported.

Alameda County shows the influence of the University of California and other educational institutions in the high proportion of Professional and Related Service Workers. Alameda Country far exceeds San Francisco as a Manufacturing center. Contra Costa County shows the largest proportion of workers engaged in Agriculture, Forestry and Fishing, a fact of which not many of us are aware. Contra Costa also has more than 43 per cent of its workers engaged in manufacturing pursuits, the highest proportion of any of the five counties, and conversely it has the smallest proportion of workers engaged in Wholesale and Retail Trade. These are observations that do not need to rest on census figures; each of us is aware, if he is at all familiar with the counties named, of the differences in their economic structure.

Because of the inclusion of military personnel in these figures and the location of Hamilton Field in Marin County, more than 31 per cent of the workers in that county are shown in Government Service (n.e.c.). This abnormal proportion has its effect on each of the other percentages reported and they are correspondingly understated. Even so, it is interesting to note the small proportion of those engaged in Wholesale and Retail Trade as compared with the number in San Francisco.

San Mateo County looms large in the proportion of its workers engaged in professional and related pursuits and in those furnishing personal services. The large number of Professional Service Workers here perhaps is indicative of a large commuting group feeding into San Francisco's supply of workers. Since there is no major institution such as the University of California to account for this large proportion of Professional Service Workers in San Mateo County, it seems likely that commuters form an important part of this group.

San Mateo County and the peninsula are well known as the location of the country homes and rural estates of San Francisco's wealthy, and the unusual proportion of persons in Personal Services in that county probably shows those engaged in performing domestic services on such estates, as well as a large proportion of owner-operated barber shops, beauty shops, shoeshine stands, etc.

The last column of Table 7 reports the industrial distribution of the four counties adjacent to San Francisco which provide the major source of the commuting San Francisco workers. It is interesting to speculate upon the effect of the commuters in these four counties upon the industrial distribution of workers in San Francisco. It is obvious that San Francisco differs markedly in its industrial pattern from that of the communities surrounding it.

The other table to which reference was made is one which reports the major industry-groups of employed workers, regardless of residence, for San Francisco, Alameda, Contra Costa, Marin, and San Mateo Counties for July, 1947. The data in it were furnished by the San Francisco labor market analyst of the California State Employment Service.

TABLE 8

Major Industry-Group of Employed Civilian Workers, Regardless of Residence, for San Francisco, Alameda, Contra Costa, Marin, and San Mateo Counties—1947.

		SAN FRANCISCO	ALAMEDA	CONTRA COSTA	MARIN	SAN MATEO	4 COUNTIES EXCLUDING SAN FRANCISCO
Agriculture, Forestry and Fishing	workers	1,700	7,200	5,300	1,550	2,000	16,050
	per cent	.36%	2.44%	7.81%	8.24%	3.80%	3.69%
Mining	workers	600	550	200	50	100	900
	per cent	.13%	.19%	.29%	.27%	.19%	.21%
Construction	workers	24,000	20,000	6,600	3,300	7,000	36,900
	per cent	5.14%	6.78%	9.73%	17.55%	13.31%	8.50%
Manufacturing	workers	82,000	74,500	26,050	800	8,400	109,750
	per cent	17.56%	25.25%	38.39%	4.26%	15.97%	25.27%
Transportation, Communication and Utilities	workers	68,600	33,900	4,300	1,750	5,750	45,700
	per cent	14.69%	11.49%	6.34%	9.31%	10.93%	10.52%
Wholesale and Retail Trade	workers	134,700	58,450	10,250	3,900	9,600	82,200
	per cent	28.85%	19.81%	15.11%	20.74%	18.25%	18.93%
Finance, Insurance and Real Estate	workers	36,200	14,000	1,450	500	1,950	17,900
	per cent	7.76%	4.74%	2.14%	2.66%	3.71%	4.12%
Business and Repair Services	workers	16,700	7,850	750	400	700	9,700
	per cent	3.58%	2.66%	1.11%	2.13%	1.33%	2.33%
Personal Services	workers	34,000	18,800	2,800	1,950	5,600	29,150
	per cent	7.28%	6.37%	4.13%	10.37%	10.65%	6.71%
Professional and Related Services	workers	38,400	33,550	6,150	2,250	7,850	49,800
	per cent	8.22%	11.37%	9.06%	11.97%	14.92%	11.47%
Government Services (n.e.c.)	workers	30,000	26,250	4,000	2,350	3,650	36,250
	per cent	6.43%	8.90%	5.89%	12.50%	6.94%	8.35%
Total workers		466,900	295,050	67,850	18,800	52,600	434,300
Total per cent		100%	100%	100%	100%	100%	100%

This table differs from the preceding one in that it excludes military personnel and reports workers in the places in which they work, rather than in the places in which they live. If a comparable distribution of workers could be obtained showing a similar distribution of workers, but according to residence rather than according to the location of their employment, a comparison of such tables might give us a clue to the occupational composition and the size of the commuter group. Such information, of course, is not available. There are several notable differences in the ratios shown in this table and in the preceding one. For instance, the Construction industry in Marin County apparently has made a striking increase in proportion, as it has done in San Mateo and in Contra Costa Counties.

The proportion of workers engaged in Professional and Related Services has increased in each of the surrounding counties, while decreasing in San Francisco. The outside counties continue to show their characteristic pattern of industry, as suggested by our own observation and the comments made in reference to Table 7 above.

Before getting too deeply involved in the application of the occupation-industry ratios which have been explained, it is necessary that the definitions affecting industrial classifications which are used by the California State Employment Service be reconciled with those used by the census. Ratios based on census relationships should not be applied to current employment-by-

industry totals unless the same industrial activities and workers are encompassed in the groups to which the ratios are applied. The Area Office of the California State Employment Service was most cooperative in readjusting its usual method of reporting in such a way as to make possible the use of the occupation-industry ratios. Several conferences with the Area Labor Market Analyst were devoted to a discussion of the elements included in different classifications, and a few changes were made as a result of the comparison of the industrial classifications used by the census with those utilized by the California State Employment Service.

The following discussion will illustrate the need for reconciling the industrial classifications used by the California State Employment Service with those used by the United States Census. We found that Radio Broadcasting, for instance, was classified by the California State Employment Service as a part of the Business Services group of industries, but was classified by the United States Census as a part of the Communications industry. Accordingly, the numbers reported for Radio Broadcasting were placed under a separate industrial caption and appear in this report as a part of the Communications industry.

Another of the differences which was found was in the classification of stevedores and longshoremen. These workers might have been classified in the Other Transportation industry, but, in order to conform to census definitions, we have placed them in the Water Transportation industry.

Most of the industries employ large numbers of workers who are covered by the provisions of the California Unemployment Insurance Act, which requires reports from employers concerning their employees. Self-employed and government-employed workers are exempt from the provisions of the law, as also are certain other small groups of workers. Estimates of employment in the Service industries, in general, are based on somewhat less adequate information than those for industries composed largely of "covered" workers.

Reasonably accurate estimates of employment-by-industry can be made for those industries whose employees are covered by California Unemployment Insurance Act benefits. Estimates in industries having a large portion of workers not covered by the act may have a somewhat larger possibility of error than is the case in those industries having the major portion of their employees covered. Margaret Thal-Larsen states in her letter transmitting the original estimates:

> "Generally, the estimates for the various industry groups were arrived at in the following manner: to employment covered by the Unemployment Insurance Act were added, by industry group, census figures for employers, own account workers and unpaid family workers (adjusted for increase to July, 1947). Totals were then checked with the area-wide production workers series of the California Department of Industrial Relations for trend and general order of magnitude.
>
> "In industry-groups, where covered employment figures do not furnish a reliable indication of total employment, as in Government, Construction, and Service, the best available sources were used in making our estimates, such as data obtained from the Employer Interview Reports submitted to the United States

Employment Service, reports from unions, and census materials adjusted in accordance with state-wide trends."

The industrial composition of a community determines in large measure the occupations which will be reported most frequently in that community. A manufacturing city will report a higher proportion of craftsmen, operatives, and laborers than will a commercial city, and a college town will show an unusual proportion of professional workers (teachers). Bearing in mind the influence of the industrial organization of the community, the reader will be interested in the occupational distribution of civilian workers in San Francisco, in the San Francisco-Oakland Metropolitan District, and in California. This is reported in Table 9, which follows.

TABLE 9

Major Occupation-Group of Employed Civilians 14 Years Old and Over, for San Francisco, San Francisco-Oakland Metropolitan District, and California—1940 and 1947 (in Hundreds)

		SAN FRANCISCO		S.F.-OAKLAND		CALIFORNIA
		MARCH 1940 (5)	JULY 1947 (DERIVED)	MARCH 1940 (9)	APRIL 1947 (9)	MARCH 1940 (5)
Professional and Semi-professional Workers	workers	254	378	574	992	2,418
	per cent	9.6%	8.1%	10.3%	11.2%	9.8%
Proprietors, Managers and Officials	workers	302	551	684	1,145	3,837
	per cent	11.5%	11.8%	12.3%	12.9%	15.5%
Clerical, Sales and Kindred Workers	workers	794	1,509	1,489	2,472	5,243
	per cent	30.1%	32.4%	26.7%	27.9%	21.2%
Craftsmen and Kindred Workers	workers	298	572	733	1,439	3,230
	per cent	11.3%	12.3%	13.2%	16.2%	13.1%
Operatives and Kindred Workers	workers	395	706	861	1,238	3,839
	per cent	15.0%	15.1%	15.5%	14.0%	15.5%
Service Workers, including Domestic and Protective	workers	441	669	812	1,037	3,221
	per cent	16.7%	14.3%	14.6%	11.7%	13.0%
Laborers	workers	156	279	418	542	2,940
	per cent	5.9%	6.0%	7.5%	6.1%	11.9%
Total workers		2,640	4,664	5,571	8,864	24,728
Total per cent		100%	100%	100%	100%	100%

The figures for the state include thousands of rural farm workers who would be classified as farm owners or tenants, thus increasing the Proprietors, Managers, and Officials group, or, as farm laborers, thus increasing the proportion of Laborers. The large proportion of Clerical, Sales, and Kindred Workers in San Francisco emphasizes the position of San Francisco as a headquarters and commercial community. When San Francisco's employment is merged with that of the San Francisco-Oakland Metropolitan District and is compared with that of the state, we see a sharp drop in the proportion of Clerical, Sales, and Kindred Workers. It should be noted also that the decrease in the proportion of workers in Service occupations from 1940 to 1947 is common to both San Francisco and the San Francisco-Oakland Metropolitan District.

When a comparison of San Francisco with the other counties in the Bay Area is made, the differences are more striking.

TABLE 10

Major Occupation-Group of Employed Workers, Including Military Personnel, for San Francisco, Alameda, Contra Costa, Marin, and San Mateo Counties—1940 (5)

		SAN FRANCISCO	ALAMEDA	CONTRA COSTA	MARIN	SAN MATEO	4 COUNTIES EXCLUDING SAN FRANCISCO
Professional and Semiprofessional Workers	workers	25,353	21,134	2,924	2,150	4,318	30,526
	per cent	9.4%	11.1%	7.9%	9.9%	9.9%	10.5%
Proprietors, Managers and Officials	workers	30,235	25,148	4,418	3,036	7,030	39,632
	per cent	11.2%	13.3%	11.9%	14.0%	16.1%	13.6%
Clerical, Sales and Kindred Workers	workers	79,432	49,258	4,918	4,022	9,604	67,802
	per cent	29.5%	26.0%	13.2%	18.6%	22.0%	23.2%
Craftsmen and Kindred Workers	workers	29,775	27,222	6,372	2,462	5,676	41,732
	per cent	11.1%	14.4%	17.1%	11.4%	13.0%	14.3%
Operatives and Kindred Workers	workers	39,534	28,517	8,714	1,638	5,715	44,584
	per cent	14.7%	15.0%	23.4%	7.6%	13.1%	15.3%
Service Workers, including Domestic and Protective	workers	49,405	23,184	3,100	6,634	5,940	38,858
	per cent	18.3%	12.2%	8.3%	30.6%	13.6%	13.3%
Laborers	workers	15,559	15,179	6,738	1,730	5,330	28,977
	per cent	5.8%	8.0%	18.1%	8.0%	12.2%	9.9%
Total workers		269,293	189,642	37,184	21,672	43,613	292,111
Total per cent		100%	100%	100%	100%	100%	100%

Table 10, in presenting the percentages of workers in the different occupations in the various counties, shows the effect produced in Alameda County by the University of California with its high proportion of Professional Workers (teachers and research workers); in Contra Costa County, by the large agricultural area and consequent high proportion of farm laborers in the county; in Marin County, by the army personnel at Hamilton Field and by the high proportion of Protective Service Workers at San Quentin Prison; in San Mateo, by the agricultural phase of the county's economic life in the above-average proportion of Laborers. Contra Costa County is an important manufacturing county and demonstrates this fact in the large ratio of Operatives. San Mateo shows an unusually large proportion of Proprietors, Managers, and Officials, thus indicating the large number of owners and managers of small stores and shops.

As has been suggested, not all of the industrial totals were firmly set before the occupation-industry ratios were applied. On the contrary, the number of workers developed by application of the ratios very often suggested the need for closer examination of the industry total. Nevertheless, after the occupation-industry ratios were developed as described in Chapter II, they were applied immediately to the preliminary employment-by-industry figures which were furnished by the California State Employment Service. This operation was a long but purely mechanical one which culminated in a tentative statement similar to that of Chart II, which shows Occupations of Employed Persons in each Industry, for San Francisco—1947 (Derived).

The tentative or working copy of Chart II presented the number of workers in each industry and their occupational distribution within that industry. Each occupation then was summed across, and the total number of workers in each

occupation, regardless of industry, was ascertained. These figures were highly tentative at that time because this method of survey had not been used previously, and therefore had not demonstrated that results would be representative of true employment figures. Further research was necessary to establish the proposition that the occupation totals thus secured were realistic.

After the totals for all occupations within each industry had been secured, and these occupation figures had been added across Chart II to form totals for each occupation, it became necessary to check as many of these figures as possible.

No attempt has been made to check each of the 87 occupation titles. Enough of the data were checked, however, to assure that the basic method of the study was valid. It may be well to repeat here that complete statistical accuracy is rarely achieved in any project dealing with so broad a field. A complete census of people in San Francisco at a cost of hundreds of thousands of dollars might have provided more nearly complete information, but even a complete federal census is always subject to error, and the direction and probable degree of the error is frankly stated in the preface of each decennial census.

It was felt that the purposes of school people would be well-served if the estimated figures approximate the true figures closely. Therefore, labor unions, employers' councils and associations, professional organizations, state and local licensing bureaus, employment agencies, personnel managers, and others were called upon for informed opinions as to the numbers in occupations within their scope. Some detailed explanation of the activities carried on in an attempt to validate occupation totals will be given here as an illustration.

Architects

Chart II indicated that one should expect to find about 307 architects in this city. The first step was to count the local architects listed in the current *Roster of Architects,* published by the California State Board of Architect Examiners. This publication, with its supplements, accounted for 257 architects with San Francisco addresses. Next, the secretary of the local chapter of the American Institute of Architects was interviewed. She was anxious to help but pointed out that she did not know how many local architects there are since they do not all belong to the local chapter. She suggested counting the names of those who advertise in the *Daily Pacific Builder.* This count gave us 228. Further conversation with the president of the local chapter of American Institute of Architects revealed that many persons who are architects in fact and in occupation may not be licensed. The license is not required of federal architects, of structural engineers or architects who work for another architect or firm of architects. In fact, the license is required only of those who wish to advertise themselves as architects or who wish to sign plans and specifications or drawings with the title of architect.

The professional skills possessed by architects, civil engineers, and structural engineers are similar, and many individuals, therefore, are able to qualify under two or more of these classifications. None of the architects visited could say definitely what the number of architects is, and none of them challenged the figure arrived at by application of the ratio. There is every reason, therefore, to assume that 307 is a reasonable figure.

Lawyers and Judges

The survey method indicated 2,777 lawyers and judges. A call to the San Francisco Bar Association proved fruitless because membership in it is voluntary and therefore does not represent the field. The California State Bar, however, which comes close to enrolling all active lawyers, has a roster of 2,653. This total, plus the number of judges in federal, state, and local courts of record, brings the check figure to 2,708, which is less than 3 per cent below the derived figure. The United States Federal Court in San Francisco adds the information that there are a few patent attorneys and some attorneys for independent government agencies who are not required to be members of the California State Bar. The derived figure, therefore, approximates the true figure very closely, and again serves to validate this method of gaining occupational information.

Pharmacists

Pharmacy provides a good example of an occupation for which our validation procedures were worth the effort involved. The survey method led us to expect to find 1,249 registered pharmacists in San Francisco, but investigation by interviews with the executive secretary of the pharmacists' union and the executive secretary of the drugstore owners' association revealed that, since 1940, because of a change in working arrangements and salaries paid, drugstores have employed a greater proportion of sales clerks and have restricted the more highly paid pharmacists to work directly connected with compounding medicines, and for which the state license is required. This was a technological change which could not be accounted for within the formula. The true figure is closer to 800, we learned. Appropriate corrections, therefore, were applied to the basic formula in this instance.

Physicians and Surgeons

By applying the ratio to employment in each industry and adding across, it was indicated that there would be 2,299 physicians and surgeons in San Francisco. The first visit was made to the offices of the San Francisco County Medical Society, which had at that time (December 31, 1947) 1,375 doctors on the membership roll. But the society authorities had no idea how many more there might be in San Francisco. The next check was made with the local office of the California State Board of Medical Examiners. It estimated that there were 2,009 licensed physicians and surgeons at work in San Francisco, and the roster published by the Board showed a count of 2,134.

This state figure, then, is about 7 per cent lower than the estimated number derived by the ratio. Furthermore, this difference is narrowed when it is pointed out that internes are not included in the state figure; nor are graduates included who have the degree but are doing medical research or teaching, which activities do not require a license. Furthermore, doctors who are totally in federal employment in federal hospitals and other institutions are not required to have state licenses. In the light of these facts, the derived number, 2,299, is considered to be valid, probably with not more than a 5 per cent deviation from the true number.

Veterinarians

In another case the work in validating the occupation totals enabled us to refine the ratio procedure. We first thought that there might be close to 100

veterinarians in San Francisco. Conferring with the California State Veterinarian Medical Association, we found that accurate records of licenses and locations of veterinarians are maintained by the society, which listed 35 such medical men in practice in San Francisco in July, 1947. This number includes federal and state workers, primarily in the inspection service; local practitioners, mainly those who care for pets, also are included.

The logical explanation of this divergence between the theoretical and the true numbers is that although the eight major occupational categories reflect accurately the San Francisco employment pattern, the method is forced to utilize national occupational patterns for the breakdowns within the categories. Since there is no national pattern for urban areas alone, the rural occupational pattern influenced this ratio and indicated more veterinarians than are to be found within the profession in San Francisco. The ratio resulting from this investigation now applies accurately to San Francisco.

Craftsmen, Foremen, and Kindred Workers

The process of checking the derived figures for occupational titles was tremendously simplified by the wholehearted cooperation of the San Francisco Labor Council. This group, representing the American Federation of Labor affiliates in this district, endorsed the occupational survey. Credentials were provided the investigators, and the executive secretaries of the various district councils visited were, without exception, able and willing to contribute materially to the success of the project. In no case was union membership the question. The problem was to discover, with the Council's help, the total number of jobs occupied in any specific classification.

Our theoretical number for railroad engineers and firemen turned out to be 332. Confirmation or criticism of this figure was sought from the Brotherhood of Trainmen, Engineers, and Firemen. This group set the figure at 178 engine crews or 356 persons. This was about 4 per cent over our estimated figure. Further conversation with these officials of the union indicated that the figure might just as well have been 300 or 360, since a small group of between forty and sixty men is listed on the "extra board" and its inclusion or exclusion becomes a matter of judgment rather than of statistics.

It is not necessary to go into all 26 classifications under Craftsmen. In brief, the American Federation of Labor and the Congress of Industrial Organizations unions involved were visited and their opinions and figures were used to check the validity of the numbers offered on Chart II. In a few cases revision of the basic ratio was indicated; in the others we found that the derived figures were very close, usually within 3 or 4 per cent, to the best estimates the unions could develop.

Cooks

Originally we had been led to expect that a total of 4,762 cooks approximates the number gainfully employed in San Francisco. A visit was made to the offices of the San Francisco Local Joint Council of Culinary Workers and Bartenders. Since the United States Census classification, for simplicity, used only one entry for cooks, there was difficulty and confusion at once. The larger establishments in the industry employ many cooks and related workers known by such occupational titles as sous chef, night chef, second cook, garde manger station cook, butcher station cook, assistant cook, help kitchen cook, first assistant to second cook, pantryman, fry station cook, vegetable cook, etc.

The union authorities were certain of jobs for 3,703 cooks, but the census classifications obviously are broader than the union's. Examination of census titles finally led the union officials and investigators to agree that in the meaning of the census there were 4,703 jobs for cooks in July 1947.

The above illustrations should make it clear that every effort was made to check the occupational data both as reported for industries and in the summary column headed "Total: All Industries." Actually 57 of the 87 occupations were investigated and only four were found to require revision of the basic ratio because their totals varied more than 10 per cent from the best estimates we could obtain. Obviously statistical treatment may produce minor errors in those occupations where small numbers appear, but it is our belief that where the numbers in an occupation are fairly large, no significant error exists.

The information which was obtained during this validation process thus was used to adjust the numbers and ratios developed in the preparation of Charts I and II. If the independent estimates were within 10 per cent of the derived occupational total, the derived figures were accepted as representative; if they varied more than 10 per cent, further investigation was made.

In some cases, the difference was reconciled by reexamining the independent estimate to see whether or not it had been too loose or too restrictive in its classification. For example, the derived figure of 4,762 cooks, as mentioned above, originally was considered far too high, but redefinition of terms (as used in the census) increased the independent estimate to 4,703. In other cases, the derived figures were altered to correspond with the independent estimate. When this was done, of course, the ratios previously computed had to be adjusted correspondingly.

Charts I and II, after having been adjusted in accordance with information secured during the validation process, now show, therefore, ratios and numbers which describe accurately the occupation-industry distribution of workers in this city, rather than a purely theoretically determined distribution.

After securing and refining the data to the point shown in Charts I and II, we found it desirable to consolidate the information into more condensed form as described below.

A variety of agencies, including, among others, the United States Bureau of the Census, the California State Employment Service, the San Francisco Chamber of Commerce, the California State Office of Planning and Research, and the California State Department of Industrial Relations, have come to report industrial distribution of workers under the major captions shown in Chart III. When employment data are classified consistently under these captions, it has been possible to make comparisons and plot trends in employment. The industrial composition of San Francisco in 1947 is shown in Table 8, which reports both the numbers and percentage of workers in the different industrial groups. These adjusted figures are presented as secured from the California State Employment Service.

The 11 industrial groups were organized into four major groups of economic activities by Van Beuren Stanbery, Western representative for Area Development of the United States Department of Commerce, then chief of technical staff for the California State Reconstruction and Reemployment Commission in the pamphlet *How Many Jobs for Californians?* issued in

December, 1944. (14). The major areas of economic activity are

Extraction Activities—these include all activities connected with the removal of raw material or produce preparatory to processing.

1. Agriculture, Forestry, and Fishing
2. Mining

Conversion Activities—these include all activities connected with the processing and fabrication of materials into finished products.

3. Construction
4. Manufacturing (all types)

Distribution Activities—these include those activities having to do with the process of buying and selling the products of the conversion group of activities, and embrace not only the so-called trading activities but also those which facilitate the movement of goods to market and those which finance and insure the operations of those engaged in trade.

5. Transportation, Communication, and Utilities
6. Wholesale and Retail Trade
7. Finance, Insurance, and Real Estate

Service Activities—these include those activities which satisfy man's needs for protection, education, health, and specialized business aids.

8. Business and Repair Services
9. Personal Services
10. Professional Services (including Amusement and Recreational Services)
11. Government Services (n.e.c.)

The 11 industrial captions group together industries which have a number of elements in common and in which there is the greatest similarity in occupational pattern. There appears to be some value in consolidating the information shown in Charts I and II into a single chart which consolidates the 67 industry titles used into 11 industry-group titles. Chart III, therefore, is presented.

In this chart, Agriculture, Forestry, and Fishing; Mining; and Construction, which appear as individual industries in Charts I and II, were copied intact from Chart II and now appear as industry-groups. We next secured occupational totals by industry—thus the number 316, opposite Chemists, Assayers, and Metallurgists, represents the total number of such workers in all Manufacturing industries. The next step was to find the proportion each of these numbers is of the total employed in this industry-group—thus of the 82,000 total in Manufacturing, the average per cent employed as Professional and Semiprofessional Workers is 3.80 per cent; as Authors, Editors, and Reporters is .91 per cent; as Proprietors, Managers, and Officials is 6.36 per cent; and as Operatives is 32.86 per cent, and so on.

Similarly, each of the occupations in the various types of Transportation, Communication, and Utilities industries was summed and the total number of workers in each occupation and occupational category in these industries was obtained. These are shown under the heading Transportation, Communica-

tion, and Utilities. Each item under this heading of Chart III was then divided by the total number of workers in this industry-group (68,600), and occupational ratios were thus established for this industry-group in San Francisco. Similar operations were performed with each of the remaining industry-groups.

Remembering that the occupational category totals and ratios are based on census data that include figures based on San Francisco alone, we may be assured that these figures are quite representative of San Francisco's peculiar occupational patterns.

These ratios, of occupation to industry-group, can be applied to estimates of employment-by-industry-group, which is a more frequent method of reporting such employment, and thus they will produce occupational employment figures which, while not as responsive to individual industry fluctuation, will be of some value in plotting major swings in employment by occupation.

Chapter IV

Employment by Industries in San Francisco

We have already seen, in Chapter III, how workers distribute themselves among the various industrial groups in San Francisco. Titles used in the United States Census have been used to describe these industries and industry-groups. However, many of us are not familar with the activities included under these titles.

It is well to bear in mind that the industries and industry-groups listed constitute a framework within which all the economic activities of our society are carried on. Their relative size changes as the development of the city is affected by various factors, and it is necessary, therefore, to understand the composition and nature of the activities carried on in each industrial group if we are to understand and account for these industrial trends. This chapter will deal with a description of each of the industry-groups and will include a brief comment regarding each of the component industries.

Several comments of general application should be made about the data which follow. Perhaps a word about how to read the large charts would be helpful. Chart I, Occupation-Industry Ratios for San Francisco—1940 (Derived), shows a percentage breakdown of occupations by industry. It must be read vertically, because the percentage figures have no meaning when read horizontally. For instance, in the third column, the Construction industry is analyzed to show its occupational composition. The first percentage in the column, 4.01 per cent, is the proportion of the workers in the Construction industry who are engaged in Professional or Semiprofessional work. It does not mean that 4.01 per cent of all Professional and Semiprofessional Workers are engaged in the Construction industry. Similarly, in this column opposite Craftsmen, Foremen, and Kindred Workers, we find 69.59 per cent. This means that 69.59 per cent of all Construction Workers are Craftsmen; not that 69.59 per cent of all Craftsmen are in the Construction industry. The percentages must be added vertically to total 100 per cent.

There are eight occupational categories, plus one for Occupations not reported. These are (1) Professional and Semiprofessional Workers, (2) Proprietors, Managers, and Officials, (3) Clerical, Sales, and Kindred Workers, (4) Craftsmen, Foremen, and Kindred Workers, (5) Operatives and Kindred Workers, (6) Protective Service Workers, (7) Service Workers except Protective Service, (8) Laborers. The percentages opposite these captions, when added by column, will total 100 per cent.

Under each occupational category are listed a number of specific occupations, and opposite these occupations is a percentage figure. When the percentages within a given category and industry-column are added, they will agree with the percentage shown opposite that category. For example, in the Construction column, there are fractional percentages opposite Architects, Civil Engineers, Electrical Engineers, Mechanical Engineers, Other Technical Engineers, Other Professional Workers, Draftsmen, Surveyors, and Other Semiprofessional Workers. These percentages, when added, will total 4.01 per cent, the proportion of Professional and Semiprofessional Workers to total workers in the Construction industry. Similar illustrations apply in other industries and occupational categories.

A glance at the percentages shown horizontally after Clerical, Sales, and Kindred Workers will demonstrate the fallacy of attempting to read Chart I in this manner. These percentages, if added, will total far more than 100 per cent, and would be meaningless if added across the chart. Those percentages in each industry-column may be added vertically, however, to account for the total employment in that industry.

Chart II, Occupations of Employed Persons, in Each Industry, for San Francisco—1947 (Derived), deals with persons rather then percentages. It may be read either vertically or horizontally. The number at the head of each column is the California State Employment Service estimate of the number of persons employed in each industry in San Francisco without regard to the occupation or residence of the worker. The figures below these column headings were derived. For instance, the 963 Professional and Semiprofessional Workers in Construction represent 4.01 per cent of 24,000—the total number of workers in that industry. The items in the various columns may be totaled vertically in the same manner as was explained for Chart I. We may also add these items horizontally to find the total number employed in a given occupation or category. These occupational totals are shown at the far right of Chart II under the heading "Total, All Industries." This shows a total of 307 Architects, 2,777 Lawyers, 8,098 Carpenters, etc., the total number employed in those occupations in San Francisco. These totals-by-occupations have been related to total employment in the following column, which shows the percentage of total employment which is represented by employment in the occupation specified. These may be compared to similar percentages computed for 1940 shown in the last column.

Chart III, Occupations of Employed Persons, Distributed According to Industry-Group, in San Francisco—1947 (Derived), has combined the figures reported in Chart II into totals by industry-group. Agriculture, Forestry, and Fishing; Mining; and Construction are not combined with other industries; they appear as industries in Chart II and as industry-groups in Chart III. Manufacturing, in Chart III, has summed the totals in each of the 26 manufacturing industries shown in Chart II in order to obtain the total Manufacturing employment of 82,000. In order to find the total number of Civil Engineers in Manufacturing, the numbers of such workers in each of the individual manufacturing industries were added together. This total, 58, represents the total number of Civil Engineers in the Manufacturing group of industries. Other occupational totals for the Manufacturing group of industries were obtained in similar fashion, as were the figures shown in the remaining columns of Chart III. In Charts II and III the total number of workers in a given occupation is the same; the industrial distribution of those workers is given in greater detail in Chart II.

After the number of workers in a given occupation was secured in this way, by industry-group, each industry-group column in Chart III was given additional treatment. The total number of workers in a given industry-group was divided into the number of workers in a particular occupation in that group to find the proportion of such workers to the total workers in the industry-group. Thus, the 3,112 Professional and Semiprofessional Workers in Manufacturing represent 3.80 per cent of total employment in that industry-group. These percentages can only be applied to the total employment in

that industry-group, and, as in Chart I, cannot be interpreted as representing the proportion of total Professional and Semiprofessional Workers engaged in Manufacturing. The number of *persons* reported in any column may be added either vertically or horizontally.

Across the top of Chart III, immediately below the industry-group title, the percentage of total employment represented by employment in that group is reported. For instance, the 5.14 per cent in Construction represents the proportion of total employment—467,800—accounted for by construction workers.

In Chapter VI, the trends in industrial employment will be discussed and in connection with that discussion, Chart IV, Forecast of the 1960 Distribution of Workers in San Francisco by Occupation and Industry, will be presented. The figures in it may be compared with those relating to number of workers in Chart III, and Chart IV may be read similarly. The first column reports the estimated number of workers in each of the occupations. The proportion which the number of workers in a given occupation bears to the estimated total San Francisco employment is shown in the second column. The third column shows the percentage of increase in a particular occupation from 1947 to 1960. As an example, in 1960, it is estimated that there will be 328 Architects in San Francisco. This will represent .06 per cent of total employment at that time, and will constitute an increase of 6.8 per cent over the 307 Architects now employed. These 328 Architects will be found in various industry-groups as illustrated in Chart IV.

Across the top of Chart IV are a number of ratios showing the percentage of increase or decrease from current employment totals by industry-group. These indicate decreases of 10.9 per cent in Agriculture, Forestry, and Fishing, and 15.8 per cent in Mining, and increases of 5.2 per cent in Construction and 5.3 per cent in Manufacturing, etc., between now and 1960. The highest rate of increase is that of the Business and Repair Services industry-group, 14.9 per cent.

In the following pages, we have attempted to indicate wherever possible the ratio of increase in employment-by-industry from 1940 to 1947. This has been extremely difficult because 1940 data for San Francisco City and County are taken from the United States Census and are based on those who live in San Francisco, while 1947 data are taken from employment statistics based on those who work in San Francisco, regardless of where they live. The differences in numbers between a report of employment which excludes commuters and one which includes them are too great to permit of direct comparison. For this reason, we have had to rely on more general signposts.

If we compare 1940 employment in the five counties of the Bay Area with the employment in those counties in 1947, the commuter factor is minimized and the basic data may be compared. It is important in making comparisons of this sort that the classifications used be similar. The California State Employment Service figures for 1947 have been prepared with this in mind. Table 11 reports the percentage of change in certain industrial classifications since 1940.

TABLE 11

Percentage of Increase in Certain Industries and/or Industry-Groups in the Five Bay Area Counties Between 1940 and 1947

	TOTAL EMPLOYMENT IN THE FIVE COUNTIES		
	1940 UNITED STATES CENSUS DATA	1947 CALIFORNIA STATE EMPLOYMENT SERVICE ESTIMATE	PER CENT OF INCREASE FROM 1940
Agriculture, Forestry, and Fishing	15,615	17,750	13.7
Mining	1,329	1,500	12.9
Construction	32,039	60,900	90.1
Manufacturing	114,893	191,750	66.9
Food and kindred products	22,235	34,200	53.8
Textiles	1,854	1,750	(—5.6)
Apparel	4,894	9,050	84.9
Lumber and Finished wood products	5,608	8,350	48.9
Paper	3,121	3,700	18.6
Printing	12,837	14,350	11.8
Chemicals	7,491	12,900	72.2
Petroleum	9,583	13,450	40.4
Leather	1,238	1,550	25.2
Stone, Clay, and Glass	3,766	6,100	62.0
Primary and Fabricated Metals and Machinery	26,253	46,200	65.9
Shipbuilding	1,603	26,250	1537.6
Auto Equipment	4,702	6,000	27.6
Other Transportation Equipment	3,204	1,900	(—40.7)
Other Manufacturing	6,505	6,000	(— 7.8)
Transportation, Communication, and Utilities	62,638	113,600	81.4
Trade	126,797	216,900	71.1
Wholesale	24,827	60,900	145.3
Retail	101,970	156,000	53.0
Services (including Finance, Insurance and Real Estate)	166,002	232,550	30.1
Government Services (n.e.c.)	37,001	66,250	79.0
	556,314	901,200	62.0

San Francisco employment constitutes a trifle more than half the total employment in the five counties and, therefore, any major swings in the five-county area should be indicative of somewhat similar changes in this city and county. The degree of change may vary somewhat between the area and this

city, but, because of the large portion of the total employment in the area which San Francisco employment constitutes, it seems doubtful that this variance could be of major proportions.

Nearly 145,000 women are employed in San Francisco in various industries, and, if the statistics on the San Francisco-Oakland Metropolitan District are an indication, they represent a higher proportion of total employment in 1947 than they did in 1940. Two tables dealing with the employment of women are significant at this point. Table 12 presents an analysis of various industry-groups in the San Francisco-Oakland Metropolitan District to show proportionate representation of women in 1940 and 1947.

TABLE 12

Analysis of Various Industry-Groups in the San Francisco-Oakland Metropolitan District to Show Proportionate Representation of Women—1940 and 1947 (9)

	PER CENT OF EMPLOYMENT REPRESENTED BY WOMEN	
	1940	1947
Construction	2.1	2.1
Manufacturing	16.6	19.5
Transportation, Communication, and Utilities	14.5	18.7
Wholesale and Retail Trade	28.5	37.6
Service industries (a)	46.2	50.4
All Other industries (b)	17.3	31.3
Total—All industries	27.6	32.0

(a) Includes: Finance, Insurance, and Real Estate, Business and Repair Services, Personal Services, and Professional and Related Services

(b) Includes: Agriculture, Forestry, and Fishing, Mining, and Government Services (n.e.c.)

In Table 12 we see that there was a consistent increase in the proportion of women employed in various industries, except for the small fraction in Construction. The increase in percentage is particularly noticeable in the case of All Other industries which is accounted for by the relatively small number of workers involved in these industries and the large increase in clerical and other activities in Government Services (n.e.c.). Because of the large number of workers employed in Wholesale and Retail Trade, the increase of 9.1 per cent in the proportion of women employed is particularly significant. The fact that this industry is composed of 45.25 per cent Clerical, Sales, and Kindred Workers accounts for the larger proportion of women in it. The Service industries show a large proportion of women teachers, nurses, and clerks in Professional and Related Services; of clerks in Finance, Insurance, and Real Estate Services; of domestics and others in Personal Services; and of clerks in Business and Related Services.

The other table which throws some light on the employment of women in the various industries in San Francisco is one which will be discussed in detail in connection with the occupational distribution of workers and which, therefore, is presented in Chapter V. Table 25 presents an analysis of occupational categories by industry to show the proportionate representation of women in San Francisco in 1940. At the foot of each column of that table are figures showing the percentages of total employment in various industries represented

by women. These figures indicate that Personal Services, Professional Services, and Finance, Insurance, and Real Estate employed the highest proportion of women in San Francisco, and that in 1940 women represented 30.58 per cent of total employment in San Francisco. The percentage shown at the bottom of these columns may be roughly compared with the figures for 1940 which are shown in Table 12.

We have spoken casually about various industries and industry-groups without being too specific about what we mean by them. The following pages will tell something about them, their importance, and the nature of the activities carried on in the industries. Some picture of the occupational distribution of workers in each industry will be given, together with some idea concerning its development since 1940.

Because this study is based on United States Census classification, the reader must be informed concerning the terms and groupings used. We have used census publications, therefore, to make clear the structure of the industrial groups discussed.

Agriculture, Forestry, and Fishing

These three related industries occupy a small but, nevertheless, important position in the working world of San Francisco. Out of 1,700 people employed there are 299 proprietors, managers, or own-account workers in these fields. These are the people who own farms, fishing boats, or nurseries.

Laborers in these activities make up the bulk—72.4 per cent—of the working force in these three fields. The total payroll per year is just short of a million dollars.

There are some top professional positions open from time to time in Agriculture, Forestry, and Fishing in San Francisco. Fifty-one persons, or 3 per cent of the 1,700 people represented, are professional Engineers, Architects, Surveyors, Chemists, etc. Another 3.41 per cent of the working force is Clerical, .59 per cent are Craftsmen, 2.06 per cent are Operatives, and .35 per cent are Service Workers.

As the economy of an area matures and ages, the proportion of people employed in extractive processes dealing with the gathering and producing of raw materials and foodstuffs lessens. So it has been in San Francisco. In 1920, 1.5 per cent of our workers were in Agriculture, Forestry, and Fishing; 1 per cent in 1930; .7 per cent in 1940; and .36 per cent in 1947. This figure will not diminish to zero but may stabilize at close to .3 per cent in the next ten to fifteen years.

TABLE 13

Percentage Distribution by Occupational Category of Workers in the Agriculture, Forestry, and Fishing Industries in San Francisco (Derived)

	PER CENT
Professional and Semiprofessional Workers	3.00
Proprietors, Managers, and Officials	17.59
Clerical, Sales, and Kindred Workers	3.41
Craftsmen, Foremen, and Kindred Workers	.59
Operatives and Kindred Workers	2.06
Protective Service Workers	.41
Service Workers	.35
Laborers	72.47
Occupation not reported	.12
	100.00

Mining

This heading covers the mining or extraction of coal, metal, oil, stone, and gravel. One would not expect much in the way of actual mining in this city.

Actually the 600 workers employed in this field are consultants, engineers, office workers, and headquarters people for mining companies and operating companies whose actual scene of operations is elsewhere in the West.

Twenty-four per cent, or 144 out of the 600 workers in this field, are professional. Among them we find Assayers, Metallurgists, and Chemists; Civil, Mechanical, Metallurgical, and Mining Engineers. Many of these are independent consultants who operate their own businesses; others are directly employed by mining companies. Proprietors and Managers of mining concerns comprise 14.5 per cent of the workers, with Clerks and Salesmen amounting to nearly 29 per cent.

As an industry offering employment opportunities to people who want to live in San Francisco, mining offers little. Men consulted in this field reported that employment opportunities throughout California in metal, oil, stone, and gravel mining concerns are good, but that the young men and women who would enter this field must be prepared to travel.

The proportion of San Francisco workers employed in mining is small and is likely to grow smaller. In 1920 and 1930, .5 per cent; in 1940, .18 per cent; and in 1947, .13 per cent of all workers in our city were in mining. In 1960, we probably will see about one-tenth per cent of our working force engaged in this industry.

TABLE 14

Percentage Distribution by Occupational Category of Workers in the Mining Industries in San Francisco (Derived)

	PER CENT
Professional and Semiprofessional Workers	24.00
Proprietors, Managers, and Officials	14.50
Clerical, Sales, and Kindred Workers	28.67
Craftsmen, Foremen, and Kindred Workers	3.83
Operatives and Kindred Workers	26.50
Protective Service Workers	.50
Service Workers	.17
Laborers	1.83
Occupation not reported	—
	100.00

Construction

The Construction industry in San Francisco employs 24,000 persons in a peak year such as 1947. This means that about five of every hundred workers in our city are building, constructing, repairing, altering, enlarging, and maintaining our physical plant. These are the people who build new homes and stores, erect factories, construct bridges, highways, and streets, who paint, repair, and remodel the structures already built.

Who does these things? As the vitality and growth of our business community calls for more structures, the contractor sets engineers and architects, draftsmen and surveyors to work. About four per cent of the jobs in the Construction industry are filled by these planners and advance workers. Clerks, bookkeepers, and office workers are busy with material orders, payrolls, and record keeping.

When construction actually begins, San Francisco's vast supply of skilled and experienced craftsmen goes to work. Nearly 70 per cent of the workers in its Construction industry are skilled craftsmen, masters of their trade.

The result of all this activity in a year like 1947 is 2,938 new homes and over $17,000,000 worth of new factories, stores, office buildings, and non-residential structures. Altogether last year, the Construction industry accounted for building permits in excess of $46,000,000, an increase of about ten per cent over 1946, which set a new all-time high for San Francisco.

As San Francisco matures and begins to make complete utilization of the space within its geographical boundaries, Construction will tend to level off. In 1920, 11 per cent of the employed workers; in 1930, 7 per cent; and in 1940, 5.14 per cent of the employed workers in this city were in Construction.

It seems reasonable to expect that in the next ten or fifteen years about five to five and three-tenths per cent of the gainfully employed workers in this city will be at work in this field.

TABLE 15

Percentage Distribution by Occupational Category of Workers in the Construction Industry in San Francisco (Derived)

	PER CENT
Professional and Semiprofessional Workers	4.01
Proprietors, Managers, and Officials	6.70
Clerical, Sales, and Kindred Workers	4.01
Craftsmen, Foremen, and Kindred Workers	69.59
Operatives, and Kindred Workers	5.96
Protective Service Workers	.23
Service Workers	.35
Laborers	9.11
Occupation not reported	.04
	100.00

Manufacturing

"The manufacturing industries in San Francisco comprise an important part of the city's activities, leading the nine major fields of activity in San Francisco in number of employees and amount of payroll. About one-quarter of all the people engaged in industry and business in San Francisco were employed by the manufacturing industries in 1940. The ratio rose to one-third during the war period, due to emphasis on production of war goods, but the current trend is toward the pre-war ratio.

"Many of the large key industries in San Francisco Metropolitan Area, with their plants outside the corporate city limits, have their headquarters in San Francisco, from which they conduct their finances, purchases, and sales." (31)

The manufacturing industry in San Francisco in 1947 employed 82,000 workers, an all-time high. But the *proportion* of people employed in this group has been on a slow but steady decline for years. Taking Construction and Manufacturing together as the components of the Conversion group, we see that although there was an increase from 1920 to 1947 in the *number* of workers employed, there was a decrease in the *proportion* of workers employed in these industries because of the proportionately larger increase in

other industries. In 1920, Manufacturing employed 24 per cent and in 1947 only 17.56 per cent of all workers in San Francisco.

Thus again we find that with a maturing economy, the *proportion* of workers employed in the conversion of materials into useful products has lessened to make way for an increase in the proportion of workers engaged in the distribution of goods and in the proportion of those performing services for the community.

In this study 26 major headings, those listed by the United States Census, have been used to describe the main divisions of the Manufacturing industry. It is interesting to note the leading group of manufacturers in terms of dollar value of finished goods.

TABLE 16

San Francisco's Ten Leading Industries—1939 (18)

Printing and Publishing	$35,911,032
Bread and Bakery Products	14,947,767
Meat Products, Wholesale	14,560,954
Bags, Other than Paper	7,217,634
Paints and Varnishes	5,310,258
Mattresses and Bed Springs	5,240,974
Sausage and Prepared Meats	4,623,596
Ship and Boat Building	4,411,780
Canned and Dried Fruits and Vegetables	4,187,857
Boxes, Paper	4,182,484

During World War II, Ship and Boat Building eclipsed all the rest, but with the return to more nearly normal times in 1947, the pattern displayed above is again dominant.

Manufacturing is obviously a factory or production-type activity in the main, and we would expect the occupational distribution of workers here to show large numbers of Craftsmen and Operatives. The table below shows how the people in this field are divided among the eight major occupational groups.

TABLE 17

Percentage Distribution by Occupational Category of Workers in the Manufacturing Industries in San Francisco (Derived)

	PER CENT
Professional and Semiprofessional Workers	3.80
Proprietors, Managers, and Officials	6.36
Clerical, Sales, and Kindred Workers	22.92
Craftsmen, Foremen, and Kindred Workers	25.35
Operatives and Kindred Workers	32.86
Protective Service Workers	.52
Service Workers	.80
Laborers	7.13
Occupation not reported	.26
	100.00

(See Chart I for composition of each of 26 components of Manufacturing).

In the paragraphs that follow, a brief description of the manufacturing industries will be made, with explanation of the goods produced, the workers employed, and, where needed, mention will be made of features of the in-

dustry peculiar to San Francisco. *Industry Classifications for the Census of Manufactures—16th Census of the United States,* 1939, has been used as a guide for placing all manufacturing establishments in this study. (15)

Baking

Establishments engaged primarily in the manufacture of bread, cakes, hand-made cookies, doughnuts, pies, pastries, etc., known as "perishable" goods, and the so-called "dry" products, such as biscuits, crackers, machine-made cookies pretzels, etc., packed in containers, are accounted for in this section.

With a value of close to $15,000,000 Baking was second only to Printing and Publishing in 1940 in the value of its product in San Francisco. The San Francisco Chamber of Commerce lists over 100 baking firms. This survey reveals that the 2,900 workers in Baking in 1947 represents .62 per cent of total employment in San Francisco.

Beverage

This heading includes all firms engaged primarily in the manufacture of (1) non-alcoholic beverages, whether carbonated or not, such as root beer, ginger ale, carbonated mineral water, etc., (2) malt liquors and malt, (3) wines, (4) distilled and rectified liquors. Workers in this industry now number 3,000.

Meat

Included in this industry are (1) wholesale meat packers, canners, and curers, (2) wholesale custom slaughtering, (3) production of sausages and meat specialties, (4) wholesale poultry dressing and packing.

The wholesale meat business is an important part of the economy of San Francisco. In 1947 about 1,800 workers were employed by the industry.

Other Food Products

Here are lumped together establishments manufacturing (1) dairy products such as cheese, butter, milk, and ice cream, (2) canned and preserved foods, (3) fish, (4) quick-frozen foods, (5) grain-mill products such as flour, cereal, rice, and prepared feeds for animals, (6) cane, beet, corn, and sugar, (7) confectionery products, chocolate, candy, and chewing gum, (8) cooking oils, edible fats, and margarine, (9) spices and flavoring extracts, (10) macaroni, spaghetti, noodles, and vermicelli.

Tobacco

This category includes those firms manufacturing cigars, cigarettes, and other chewing and smoking tobacco, and snuff. Insecticides and other tobacco products are listed elsewhere under Chemicals. Fourteen firms engaged in the manufacture of tobacco are listed for this city by the San Francisco Chamber of Commerce. These organizations employ only 700 workers, or .15 per cent of total employment.

Textile Mill Products

This industry includes establishments primarily engaged in performing any of the following operations: (1) Manufacturing batting, wadding, packing, felts, yarns, cordage, and twine, (2) Manufacturing woven cloth, carpets and rugs, braids, laces, knit cloth and knit garments, or products from finished or unfinished yarns (3) Dyeing and finishing fibers, yarns, and cloths, (4) Coating, waterproofing, and otherwise treating fabrics. (The rubberizing of fabrics is included in the Rubber Products group).

Eleven hundred workers were engaged in these activities in 1947. A wide variety of materials ranging from fishing lines to "felt hats primarily for export to Korea" are included in the products of these mills.

Apparel and Fabricated Textiles

The cutting-up industries or needle trades produce clothing and other fabricated articles from purchased woven or knitted fabrics. All types of textiles are utilized, as well as rubber, fur, and other materials. Custom tailors or dressmakers not operating on a factory basis, are excluded from the scope of these industries.

The apparel industry long has been a substantial part of San Francisco's industrial life, but it has grown unusually fast of late years. In 1940, 1.45 per cent of all workers were employed in this industry, and in 1947, the industry employed 1.77 per cent of all workers in its operations.

The erection of Apparel City as a center for the needle trades industry in San Francisco is only one indication of the healthy progress of this fast-growing business in our community. No doubt the schools will be called on more and more to provide trained workers for this industry.

Saw Mills and Planing Mills

This group includes establishments primarily engaged in the manufacturing of dressed lumber, sash, doors, window and door frames, interior woodwork, moldings, boxes, crates, and cooperage.

This small basic industry in San Francisco is one of specialized techniques as will be evident from the description above of its products. Operators of machinery and Craftsmen constitute more than one-half the workers in the industry.

Furniture and Lumber Products

Here are grouped those industries manufacturing furniture made of wood, finished articles made mainly or entirely of wood, household furniture, office and professional furniture, partitions, wooden containers, window and door screens, wooden and venetian blinds, caskets, cork products, mirror and picture frames, and other wood products. Here again Craftsmen and semi-skilled Operatives form the largest group of employees.

Paper and Allied Products

This industry, centered in converted paper products, is of major importance to us. Converted paper products include coated, glazed, waxed, and gummed paper; envelopes, paper bags, fiber cans, tubes, spools, cones, and mailing cases; paperboard containers and boxes, die-cut paper, paperboard, cardboard, wall paper, and other converted paper products such as crepe paper, dishes, cups, napkins, and towels. Pulp mills and paper and paperboard mills also are included in this industry by the census but are relatively unimportant in San Francisco's employment pattern. About sixteen hundred people are employed in this industry in San Francisco.

Printing and Publishing

This heading includes printing, publishing, lithographing, and engraving establishments, and firms performing services for the printing trade such as typesetting, photoengraving, electrotyping, stereotyping, rotogravure, and bookbinding.

As the printing and publishing center of the West, San Francisco produced

over $35,000,000 worth of printed and published material in 1939. In 1947, there were 10,100 workers in the industry, many of whom are highly skilled craftsmen. Journalists, authors, and editors fill over 700 of the positions in this industry.

Chemicals and Allied Products

This industrial classification covers those organizations manufacturing (1) paints, varnishes, and colors, (2) nonedible animal and vegetable oils, (3) drugs, medicines, toilet preparations, and insecticides, (4) soap and glycerin, (5) hardwood distillates, charcoal, and naval stores, (6) fertilizers, (7) industrial chemicals such as dye-stuffs, coal-tar products, acids, alkalis, salts, organic chemicals, etc., (8) miscellaneous chemical products such as ammunition, explosives, ink, cleaning preparations, grease and tallow, lubricating greases and oils, fireworks, blueing, mucilage, adhesives, and gelatins.

This is another San Francisco industry in which the bulk of personnel are professional and clerical because the San Francisco office is primarily a headquarters and record keeping center with much plant and production activity located outside the city limits.

Petroleum and Coal Products

Here are listed those establishments primarily engaged in the refining of petroleum crude oil, and manufacturing coke and coke-oven products. It includes paving and roofing materials.

There were 3,900 workers engaged in this industry in 1947, of which over 80 per cent were Professional, Managerial, Clerical, or Sales Workers. This is another example of the industry using San Francisco as its headquarters, with the clerks and managerial personnel here, and the craftsmen and production people at work in some other location.

Rubber Products

This classification includes firms primarily engaged in the manufacture of (1) tires and tubes, (2) rubber boots and shoes, (3) reclaimed rubber, (4) rubber products such as rubber heels, soles, mechanical soft rubber goods, belts, hose, tubing, plumbers supplies, rubberized fabrics and clothing, and tire retreading if done on a factory basis.

The estimate of 200 workers in this industry indicates a decrease since 1940. In the opinion of authorities in the California State Employment Service, however, this change is one primarily of definition. In 1940 some workers who were not engaged in strictly factory-type rubber products fabrication may have been included in this industry. Examination of the records reveals no change of any importance in the size or number of firms engaged in the manufacture of rubber products since 1940.

Leather and Leather Products

This industry includes establishments engaged in tanning and finishing hides and skins, and those manufacturing finished products of leather, such as industrial belting, boot and shoe cut stock, footwear, gloves and mittens, suitcases, brief bags and luggage, pocketbooks, handbags, saddlery, harness, etc.

Operatives or semiskilled workers, predominate among those engaged in the leather products industry. Anderson and Davidson in their *Recent Occupational Trends in American Labor* point out that, for the United States

as a whole, the leather working industry, exclusive of footwear, has made no expansion in number of workers over the last three decades.

Stone, Clay, and Glass Products

This group of industries includes establishments primarily engaged in the manufacture of flat glass and glass products, cement and structural clay products, pottery and related products, concrete, gypsum and plaster products, cut-stone and stone, abrasive wheels, asbestos products, graphite, and other related products.

The division of workers in this industry shows about half the workers in professional, managerial, and clerical-sales activities, with the other half in the production end of the business. These are the workers who produce cement laundry trays, sewer pipes, fire clays and bricks, monumental and structural marbles and slabs, lime putty and lime mortar, glass signs and mirrors. Glass blowing for technical purposes, laboratory glass, special magnesite and terazza floors, concrete piles, and other specialties are manufactured by this group.

Blast Furnaces and Steel Works

This industry-group is formed by those establishments primarily engaged in the manufacture of pig iron and steel, iron and steel castings, and cast-iron pipe and fittings.

Three hundred workers were employed by this industry in San Francisco in 1947. Sixty per cent of these workers were Craftsmen, Operatives, and Laborers. The industry in this city, exclusive of plants in South San Francisco, Pittsburg, and Emeryville, produces mainly pipes, pipe fittings, and castings.

Miscellaneous Iron and Steel Products

Represented here are the fabricators of iron and steel products such as tin cans and tinware, wire products, cutlery, tools, hardware, heating apparatus and plumbers supplies, metal stamping, enameling, galvanizing, japanning and lacquering. Structural fabricated, and ornamental steel and metal work, along with miscellaneous nuts, bolts, springs, screws, etc., complete the list of industrial products in this group.

San Francisco employed 7,400 persons in these industries in 1947. More than 5,000 of these were Craftsmen, Operatives, and Laborers. There is a large force of highly skilled machinists, lathe operators, molders, and mechanics represented in these figures. The San Francisco Chamber of Commerce takes 40 pages in one of its publications to list the firms engaged in producing and processing metal products in this city and county.

Non-ferrous Metal Products

The manufacturing activities of this group of industries are primary smelting and refining of non-ferrous metals, alloying, rolling, and drawing; and the production of clocks, watches and parts, jewelry, lapidary work, silverware and plate, lighting fixtures, aluminum and kitchen ware, and tin, silver, and gold foils.

About nine hundred persons find work in these plants. As would be expected, about forty per cent of the workers are artisans and craftsmen. The business is fairly stable in San Francisco and does not show readily the effects of short term business fluctuations in its employment pattern.

Electrical Machinery and Equipment

This group of industries includes establishments primarily engaged in manufacturing any type of machinery, apparatus, and supplies for the gen-

eration, storage, transmission, transformation, and utilization of electric energy. Such items are mining devices and supplies, carbon products for electrical use, electrical measuring instruments, generating and distribution equipment, electrical appliances, insulated wire and cable, automotive electrical equipment, electric lamps, communication and radio equipment, batteries, and X-ray equipment.

In the electrical machinery field thirteen hundred workers were found. About forty per cent of these were in the production end, about twenty per cent in the professional and managerial area, about thirty-six per cent in the clerical-sales department, and the rest scattered as service, labor, and protective service workers.

Machinery Except Electrical

These are the industries manufacturing machinery and equipment. They do not include electrical machinery and prime movers. Such things as engines and turbines, agricultural machinery and tractors, construction and mining and related machinery, and machine tools are included. Special industry machinery for food, textile, printing, and woodworking concerns is made by the groups included here. Household appliances, office and store machines, and general industrial machines are manufactured by this group.

Forty-five hundred men and women are at work in San Francisco producing the machinery listed above. Nearly six per cent of them are professional workers. Except for those practising as consulting engineers, more mechanical engineers are employed in the manufacture of machinery than in any other industry. Over 50 per cent of the 4,500 workers are production people, skilled craftsmen and machine operatives. Machinists alone, make up 24.09 per cent of the entire working force in the industry, and the clerical force accounts for 23.18 per cent. It should be pointed out that the relatively small sales force in machinery manufacturing—7.51 per cent—includes some highly trained technical persons. The selling of much expensive machinery frequently is done by engineers who have left design and production work to become sales engineers.

Aircraft and Parts

In San Francisco, the manufacture of aircraft and parts is extremely limited. The primary products are airplane instruments, communication equipment, bearings and cables, and special insulating material used in aircraft.

Only 200 people were employed in this industry in 1947, of whom about fifty per cent were directly concerned with the production activity.

Autos and Auto Equipment

These industries manufacture complete automobiles, chassis, trucks, truck bodies, trailers of all kinds, gears, wheels, radiators, bumpers, shock-absorbers, frames, horns, and windshield-wipers.

These industries employed about 700 people in this city in 1947. About sixty-two per cent of the workers are directly engaged in production.

Ship and Boat Building

The manufacturing described here is that concerned with the building, alteration, repair, and conversion of all types of steel and wood ships, boats, yachts, sailboats, rowboats, barges, canal boats, lighters etc.

This industry in San Francisco is traditionally among the top ten in value

of product. During the war it became the first in value, but the end of the war it returned again to its normal position of seventh or eighth. Ship and boat building employed 14,600 workers in July 1947, of which 90.89 per cent were craftsmen, operatives, and laborers. Although almost all the crafts are employed in shipbuilding, carpenters, steamfitters, sheet metal workers, machinists, and pattern makers are in heaviest demand.

Railroad and Miscellaneous Transportation Equipment

This industry-group consists of those manufacturers engaged in the building and rebuilding of rail-traction locomotives, including steam, compressed air, Diesel-electric, straight-electric, and gasoline-electric locomotives. The making of railroad or street cars and car equipment, as well as the production of motorcycles, bicycles, hand trucks, wheelbarrows, etc., is in this group. In San Francisco this industry concentrates on parts and small equipment. About one hundred people in this city are estimated to be working in the activities above. This is not a significant market for the placement of workers.

Other Manufacturing Industries

This group of industries includes those manufacturing (1) professional and scientific instruments, photographic apparatus, and optical goods, (2) surgical, medical, and dental instruments, equipment, and supplies, (3) musical instruments and parts, (4) toys and sporting and athletic goods, (5) pens, pencils, stencils, carbon paper, inked ribbons, and artists materials, (6) buttons, (7) costume jewelry, lamp shades, jewelry and instrument cases, (8) brushes, brooms, (9) beauty and barber-shop equipment, and (10) fabricated plastic articles.

In 1947 San Francisco had 2,700 workers engaged in the manufacture of such articles as those listed above.

Few professional people are required for this type of manufacture; the ratio for San Francisco is 3.07 per cent. Craftsmen and Operatives combine to make up 47.08 per cent of the workers. Machinists, machine operators, patternmakers, and mechanics show up in slightly greater numbers in this industry than do other craftsmen. Unskilled labor represents 5.85 per cent of the employment in this industry.

Transportation, Communication, and Utilities

This, the fifth of the eleven major divisions of San Francisco's working world, employs 68,600 workers. By means of these industries we move goods, products, and materials; provide for the transportation of people and for the transmission of ideas; make possible the delivery of electricity, water, gas, and the removal of waste.

Fifty-one thousand nine hundred of these workers are engaged in the transportation of goods and people. A vast transportation network of airlines, railroads, and highways converges upon San Francisco from north, east, and south. Another network of airlines and shipping spreads out over the Pacific Ocean and into neighboring countries.

Another group of 12,700 persons maintains and operates the communication lines between San Franciscans and the rest of the world. The third group of 4,000 workers provides the water, gas, electricity, and sewage systems of our city.

TABLE 18

Percentage Distribution by Occupational Category of Workers in the Transportation, Communication, and Utilities Industries in San Francisco (Derived)

	PER CENT
Professional and Semiprofessional Workers	3.34
Proprietors, Managers, and Officials	7.50
Clerical, Sales, and Kindred Workers	30.09
Craftsmen, Foremen, and Kindred Workers	6.87
Operatives and Kindred Workers	29.19
Protective Service Workers	1.36
Service Workers	4.05
Laborers	17.29
Occupation not reported	.31
	100.00

The following paragraphs will describe the composition of the industries included in this section.

Railways and Railway Express

The railway industry represented here includes the operation, movement, and maintenance of trains and equipment, as well as the sales, clerical, and engineering services. The complete activity of the railway express service is also covered here.

The 5,200 workers in this category are distributed in an occupational pattern that is quite different in San Francisco than it is for the rest of the United States. Because San Francisco is the financial and home office center for the West, we find the proportion of clerical workers to total workers is high here; about forty per cent of the workers in the railway industry in this city are clerical workers, compared to about twenty per cent clerical workers in California and the nation. The operating departments of the railroads in San Francisco are correspondingly smaller in proportion of total employees.

Street Railway and Bus Lines

This industrial group covers all municipal and other street railway systems and bus lines for local transportation; this is primarily the Municipal Railway of San Francisco. In this group also are the large bus lines for intercity transportation with their local or commuter services.

Fifty-six hundred persons are employed by these industries in San Francisco. Over 70 per cent of the workers in this industry are operatives, mainly drivers, motormen, and conductors. Eleven per cent of the total are craftsmen concerned with upkeep and repair of equipment, and 11.91 per cent are employed in the clerical and sales departments. The Street Railway and Bus Lines industry operates with a very low percentage of professional and managerial help. Only 1.5 per cent of the 5,600 workers fall into this group.

Trucking and Warehousing

In this industrial group are included all those activities coming under heavy and light industrial trucking lines, warehousing, and storage facilities. Delivery by retailers is not included.

Of the 8,700 persons at work in this group, 70.01 per cent are truck drivers and helpers or warehousemen. Nearly 50 per cent of the few craftsmen employed in this industry are mechanics. The primary function of this group

is not the fabrication or processing of articles, but the movement, storage, and transportation of such things for other industries.

Water Transportation

This listing covers the water transportation industry and the services allied to it, such as stevedoring and longshoring, freight handling, and inland water transportation.

According to the California State Employment Service, about 35 steamship companies operate out of San Francisco and other Northern California ports; in addition, many foreign lines call at this port. In July 1947, 21,500 workers were engaged in this industry. Of these, 32.94 per cent were stevedores and longshoremen; 25.44 per cent were operatives, primarily seamen and deck hands; and 12.39 per cent were shoreside clerical and sales workers. Since the function of repair and conversion of ships and boats is performed by a different industry, we find few craftsmen involved in water transportation. The sea-going occupations in this industry fall either into the managers and officials class, where we have captains and mates, or into the operatives group, where we have the ordinary sailor.

Other Transportation

This is a miscellaneous group which includes taxi firms, charter bus lines, freight forwarding services, packing and crating activities, travel agencies, renting of railroad cars, pipe lines, and other services allied to transportation.

In July, 1947, there were 7,800 persons at work in this industry, the largest single group in it being the taxicab drivers. The operatives and clerical-sales force together make up 82.38 per cent of total employment in the Other Transportation group. There also are about five hundred travel agents in this group.

Air Transportation

This industrial group is composed entirely of those firms and establishments engaged in the transportation of passengers and freight by air. The advertising and selling of space and reservations, the operation and maintenance of aircraft, and the attendant clerical and business activities required for this service are included here. The California State Employment Service reported that 3,100 persons were employed in San Francisco in Air Transportation in July, 1947. Of these, 593 were professional people, primarily flying personnel and engineers—such as aviators, pilots, assistant pilots, plane captains, radiomen, navigators, and meteorologists. The largest group, 1,163—or 37.52 per cent—were clerical and sales people.

Those people who live and work for airlines at points outside the city limits are not reported here.

Telephone and Telegraph

These industries are those engaged in providing communication both by wire and radio. The 12,000 workers found in this field are employed primarily by the telephone company, the telegraph companies, and the three large commercial radio communications companies in this city.

The most noteworthy fact with regard to employment in this industry is that 75.19 per cent of the total personnel is in the clerical and sales fields. This again illustrates the fact that San Francisco is a headquarters city, with much of the bookkeeping and clerical work of a statewide system being done here, while much of the operating personnel is found in the outlying areas.

Telephone operators constitute 24.78 per cent of these clerical workers. Chart I shows that 14.7 per cent of the total San Francisco employment in Communications consists of Craftsmen and Operatives. This chart shows, further, that only .35 per cent of employment in Communications is accounted for by unskilled labor, this condition being accounted for in part by the fact that some of the larger companies in this field employ no labor directly but contract with others for the work. Engineers and other professional and semiprofessional workers compose 4.43 per cent of employment in this field.

Radio Broadcasting

This is the industry that provides the radio broadcast for home reception of entertainment, educational, cultural, and news features. About seven hundred persons were employed by this activity in San Francisco in 1947. The industry is influential but, since many of the "live-talent" shows are brought to San Francisco by telephone wire from other cities where they are originally produced, local employment opportunities are limited.

A typical, large broadcasting station in San Francisco would show this employment pattern:

PROGRAM DEPARTMENT
- Musicians
- Librarians
- Artists
- Program Manager
- Announcers
- News Writers
- Program Producers

SALES DEPARTMENT
- Sales Manager
- Account Executives
- Promotion Manager

ACCOUNTING DEPARTMENT
- Auditor
- Secretary-Clerk
- Bookkeeper
- Payroll Supervisor
- Cashier
- Purchasing Agent

ENGINEERING DEPARTMENT
- Engineer-in-charge
- Field Supervisor
- Studio-Field Engineers
- Transmitter Engineers
- Central Room Supervisors
- Recording Engineers

CLERICAL DEPARTMENT
- Duplicating Operators
- Stenographers
- Secretaries
- Clerks
- Typists
- PBX Operators
- Page Boys
- Office Boys

A high percentage of employment in radio broadcasting is classified as professional by the United States Census, even though many of the so-called engineering jobs of the operating or maintenance type are semiprofessional from point of view of training required or responsibility assumed. Including these, then, with artists and other professional workers, we find 59.86 per cent of employment in radio in the professional and semiprofessional category. In clerical and sales activities there are 22.57 per cent and in managerial activities about ten per cent; the rest of the workers are scattered among the other five fields of occupations.

Interviews with officials of local radio broadcasting firms lead to the opinion that great expansion of employment in this industry in San Francisco is not to be expected. Furthermore, retirement for age or health reasons is low in this work because the radio broadcasting business is comparatively young. The people who have grown up with it also are young.

Utilities

Utilities, as classified in this section, are those firms engaged in the provision of electric light and power, gas works and steam plants, and water and sanitary services.

Four thousand persons were employed at this work in San Francisco in 1947. Some 8.38 per cent of them were Professional and Semiprofessional workers, with the heaviest employment in this area being that of Electrical Engineers. Almost 35 per cent of the workers are in clerical and sales jobs, and over 50 per cent are Craftsmen, Operatives, and Laborers.

By its very nature this is a relatively stable group of industries from the employment standpoint.

Wholesale and Retail Trade

San Francisco is strategically located as a center for wholesale trade in the Western market, and contains a compact market of high potential buying power for its retail outlets. In 1947, wholesale and retail trade sales amounted to five billion dollars. "The per capita sales for San Francisco amounted to $1,370 in 1946. Per capita sales for California amounted to $954." (31)

The United States Census for 1940 shows the five leading groups in order of retail sales:

1. Department Stores
2. Restaurants
3. Grocery Stores (no meat)
4. Motor vehicles (new) retailers
5. Combination grocery and meat retailers

The 134,700 people employed in trade in 1947 account for 28.85 per cent of all employed workers. They are distributed occupationally as one might expect, with the largest group being in the sales and clerical category.

TABLE 19

Percentage Distribution by Occupational Category of Workers in the Wholesale and Retail Trade Industry in San Francisco (Derived)

	PER CENT
Professional and Semiprofessional Workers	1.50
Proprietors, Managers, and Officials	19.86
Clerical, Sales and Kindred Workers	45.25
Craftsmen, Foremen, and Kindred Workers	5.07
Operatives and Kindred Workers	9.82
Protective Service Workers	.20
Service Workers	15.28
Laborers	2.84
Occupation not reported	.18
	100.00

The State of California publishes a quarterly bulletin, *Trade Outlets and Taxable Retail Sales in California* (38), which can be useful for counselors and other school people. According to the August 29, 1947, issue of this report, there were 24,042 taxable retail outlets in San Francisco City and County on June 30, 1947. The report groups them into 32 major lines of business. The *United States Census of Business for 1939* uses 98 headings in classifying retail outlets. To clarify the discussion, we have adopted 10 major headings for retail stores, as described below:

Hardware and Building Materials

This group includes stores selling basic lines of hardware, such as tools, builders hardware, paint, glass, houseware, appliances, roofing materials, and farm implements. The building materials group includes those retailers selling direct to consumers and retailing to builders and contractors such supplies as lumber, heating and plumbing equipment, paint, glass, wallpaper, electrical supplies, sand, gravel, cement, and other construction materials.

As in most of the retail sales industries, the sales workers and clerical force account for the major portion of the workers in hardware and building material businesses. The clerical force constitutes 20.75 per cent, and the sales force 35 per cent of total employment in this industry. About eight hundred persons were engaged in all aspects of the retail hardware and building materials business in San Francisco in 1947.

Food and Dairy Stores

These establishments are primarily retail grocery stores, meat markets, dairy products stores, fish markets, poultry and egg markets, candy and nut stores, confectionery stores, delicatessens, fruit and vegetable markets, bakeries, catering establishments, and other food stores. Delivery systems for coffee and tea, for milk and dairy products, and for other regularly-delivered items, such as bakery goods, are included in this food group.

In 1947, there were 15,500 people at work in the retail food group in San Francisco. Over 35 per cent of these workers are sales workers who actually do the over-the-counter selling. Over 7 per cent of the workers in this industry are craftsmen, most of whom are bakers and candymakers. It is of interest to note that more bakers are employed in retail bakery units in San Francisco than in manufacturing bakeries.

General Merchandise and Variety Stores

The stores in this group are (1) those general merchandies stores with sales in excess of $100,000 annually—usually of the full service type, carrying men's, women's and children's apparel and shoes, furnishings and accessories, dry-goods, homewares, home furnishings, draperies, curtains, linens, etc., and (2) variety stores with small wares, inexpensive gift items, stationery, toys, houseware, etc.

Twelve thousand people were employed in general merchandise and variety stores in San Francisco in 1947 to sell over 100 million dollars worth of merchandise. The State Board of Equalization reported over 900 retail outlets of this sort in the city.

Large department stores are small cities in themselves, and the variety of occupations found in them is enormous. For example, of 160 Professional and Semiprofessional Workers in department stores, 10 of them are Teachers, 38 are Artists, and 10 are Authors, Editors, and Journalists, as the reader will note from a study of Chart II. Stores employ people to teach the sales force, both regular and new people, such things as salesmanship, personal appearance, rules of the store, and other items as need arises. Artists are used for display work, and authors are the copywriters, advertising men, and publicity writers.

The large percentage of Proprietors, Managers, and Officials, 12.45 per cent, found in department stores is an indication of the opportunities available for responsible positions in this field. In this group are found buyers, floor managers, department heads, and top management personnel. A few repre-

sentatives of almost every craft are employed by department stores, including carpenters, electricians, cabinet makers, typesetters, bakers, and mechanics. The majority of the operatives listed are deliverymen and seamstresses.

Apparel, Accessories, and Shoes

The apparel group includes those stores selling primarily clothing, shoes, hats, underwear, and related articles for personal wear and adornment. Infants-wear shops and custom tailoring establishments also are included in this group.

Ten thousand nine hundred persons were employed by these stores in 1947, these representing 2.33 per cent of the total employed in San Francisco. The general pattern of occupations for retail sales holds here, except that we find by inspection of Chart I that the Craftsmen, Foremen and Kindred Workers category increases in importance in this industry, with Tailors and Furriers accounting for 17.22 per cent of all employment in the industry. Another 8.96 per cent of employment is represented by Dressmakers and Seamstresses.

Furniture and Household Equipment

This group includes those stores selling such goods used for furnishing the home as furniture, floor coverings, draperies, glass and chinaware, stoves, refrigerators, radios, and other household electrical and gas appliances. Interior decoration and antique shops are classified in this group.

Volume of sales and total employment in the retailing of furniture and household equipment have made large gains since the war years. Increased population resulting from migration and from a higher birthrate has stimulated the establishment of new households, which in turn have provided a steady market for such goods. Business in household furnishings is expected to be good for some time.

In 1947, there were 3,400 people employed in this industry, most of whom were sales workers. The clerical and sales group together account for 48.15 per cent of this employment. A large group of Craftsmen and Operatives finds work in this field as installers, repairmen, and service men; these amount to 28.47 per cent of employment in the home furnishings industry.

Motor Vehicles and Accessories

This group includes retail dealers selling new and used automobiles, new parts and accessories, aircraft, motorboats, and motorcycles. Establishments primarily engaged in selling trucks and motorized industrial equipment are classified as wholesale establishments.

It is natural that the largest single occupational group in this industry is composed of salesmen—48.89 per cent. The three groups—(1) Proprietors, Managers, and Officials, (2) Clerical, and (3) Sales Workers—account for 84.5 per cent of the 3,600 people in this industry. Since many new car dealers maintain repair departments, we find 12.53 per cent of employment represented by Craftsmen and Operatives.

Filling Stations

This classification includes establishments primarily engaged in selling gasoline and lubricating oils. Places of business operating as garages but which derive the larger part of their receipts from gas and oil sales also are included. Filling stations usually sell tires and tubes, and other automobile accessories.

This business employed 1,900 workers in San Francisco in July, 1947. Operatives, the men who actually perform service for the customers in the stations, and the owner-operators compose 91.05 per cent of total employment. The clerical force is small in this business, partly because of the simplified nature of the transactions involved, and partly because some of the clerical work of retail outlets is performed by the clerical workers of the parent oil producing or refining company.

Drug Stores

The stores described by this caption have been included herein on the basis of their usual trade designation rather than under the designation of the item which constitutes their greatest volume of sales. These stores sell prescriptions, drugs, or patent medicines, in combination with lines such as cosmetics, toiletries, tobacco, magazines and books, and novelty merchandise. In this state bottled wines and liquors constitute an important part of drug store sales. Frequently the sale of sandwiches, light lunches, and soda fountain items forms a major source of receipts.

Two thousand eight hundred persons were reported as employed in this field in July, 1947, by the California State Employment Service. Of these, 28.50 per cent were professional people, mainly pharmacists. In the 1940 Census an even higher percentage of workers were pharmacists, but our investigation in the spring of 1948 has revealed that a major change in policy has occurred in drug stores in San Francisco since 1940. The law for years has required that a registered and licensed pharmacist must be on duty at all times a drug store is open for business. Most of the larger stores maintained several druggists who also sold items and performed duties not reserved solely to pharmacists. But in the early forties wage or salary rates for licensed pharmacists rose sharply, and many men left to go into the service. At that time, it became a general practice to employ a minimum number of pharmacists and to have their related sales duties performed by sales people.

About forty-five per cent of workers in drug stores are in the Sales Workers category. The drug stores in this city are those primarily in which a wide variety of merchandise is sold; only a very few restrict their business to the preparation of prescriptions. The State Board of Equalization reports that there were 490 retail drug stores in San Francisco on June 30, 1947.

Eating and Drinking Places

Eating places are those selling prepared food for consumption on the premises. They are restaurants, cafeterias, lunchrooms, lunch counters and soft drink, juice, and ice cream stands. Restaurants and lunch counters operated by hotels and other retail stores are not included in this group. Drinking places included are those in which beer, ale, wine, liquor, and other alcoholic beverages are sold for consumption on the premises; they may be known as bars, beer gardens, taverns, night clubs, cabarets, etc.

In 1947, 23,300 people were engaged in the operation of such places in San Francisco. Of those employed in this field, only .66 per cent are Professional Workers, the majority of whom are musicians and entertainers. Over 80 per cent of employment in this business is, of course, in the Service Workers category. Inspection of Chart II will reveal that Waiters, Waitresses, and Bartenders, along with Cooks, comprise the bulk of employment in the field. The restaurant business long has been famous in this city as an attraction for

tourists, and residents dine out much more frequently here than do those in most other cities, according to surveys that have been made by the industry.

Other Retail Stores

This group includes (1) fuel and ice dealers and fuel-oil retailers, (2) hay, grain, and feed stores and farm and garden supply stores, (3) jewelry stores, (4) flower shops, (5) book, stationery and novelty stores, and news dealers, (6) cigar stands, (7) commercial appliance and equipment stores, (8) photographic and camera stores, (9) musical instrument stores, (10) scientific, medical instrument, and supply dealers, and other retail stores.

This miscellaneous caption accounts for the employment of 13,500 people. It shows a typical retail store pattern of occupations, with clerical-sales force and self-employed owners representing 85.13 per cent of employment.

Wholesale Trade

The *16th Census of the United States—1940,* in its section on the "Census of Business," defines Wholesale Trade as that conducted in "all places of business primarily engaged in selling or acting as an agent in selling or buying goods on a wholesale basis." An establishment doing such business may be a store where goods are kept in stock for delivery, a warehouse from which sales at wholesale are made, or a sales or brokerage office. Wholesale sales are defined, for census purposes as sales of food or merchandise to trading establishments, to institutional, industrial, commercial, professional users, and to government bodies. Goods sold at wholesale usually are considered as purchased for business purposes, such as materials for further processing and fabrication, or merchandise for resale unchanged, rather than for personal or household consumption.

According to preliminary estimates made by the Chamber of Commerce in February, 1948, sales in this category for 1947 were about sixteen per cent greater than in 1946. The clerical and sales force account for over half of the employment in this industry, and, as may be seen from Chart I, proprietors, managers, and officials, truck drivers, and warehousemen make up most of the rest.

Finance, Insurance, and Real Estate

San Francisco for many years has been the outstanding financial center of the West. The San Francisco Chamber of Commerce points out that "San Francisco, the financial and insurance capital of the West, is the nation's second most important financial center. Seven of the nation's one hundred largest commercial banks are located in San Francisco." Today San Francisco is headquarters for the largest bank in the world.

The San Francisco Stock Exchange occupies a high position among the regional exchanges in the nation and has made a real contribution to the expeditious handling of the financial transactions of the Western regional markets.

The insurance business demonstrates dramatically San Francisco's leading financial position. About 400 of the 600 insurance companies authorized to do business in California have made this city their headquarters. Some of these companies occupy entire buildings where they service the policy holders and agents for several states in the region.

The value of real estate and improvements in San Francisco is between one and two billion dollars, and the transactions involved in this activity are handled by a large and well-established real estate group. Sales in 1947

amounted to 228 million dollars, and building permits have been increasing steadily in number and in value.

The entire Financial, Insurance, and Real Estate activity in San Francisco employs 7.76 per cent of the entire force of gainfully employed workers—36,200 persons. The occupational distribution of these people is shown in the accompanying table.

TABLE 20

Percentage Distribution by Occupational Category of Workers in the Finance, Insurance, and Real Estate Industries in San Francisco (Derived)

	PER CENT
Professional and Semiprofessional Workers	1.16
Proprietors, Managers, and Officials	19.16
Clerical, Sales, and Kindred Workers	62.98
Craftsmen, Foremen, and Kindred Workers	1.59
Operatives and Kindred Workers	.26
Protective Service Workers	1.00
Service Workers	13.14
Laborers	.55
Occupation not reported	.16
	100.00

In general, this occupational pattern is about what we would expect. Examination of Chart III shows us that 39.45 per cent of the workers in this field perform clerical duties. This high proportion of clerical personnel is the result of the maintenance of central office functions in San Francisco by finance companies, banks, and other agencies operating throughout the state and the West. Sales workers represent 23.53 per cent of workers in this field. Chart III shows those occupational titles which include large groups of workers.

Banking and Finance

Included under this heading are those banks under state and national supervision such as commercial and savings, savings only, and savings and trust banks. There are 17 of these. Two title insurance companies operating trust departments and ten building and loan associations under either federal or state charter are found in this industrial group. The stock exchange, stock and bond brokers, and other financial agencies of a miscellaneous nature are included here.

In 1947, there were 11,000 persons employed in the banking and financial field in San Francisco. About seventy-one per cent of these were definitely clerical workers, of which about fifty-five per cent fall in the classification, Other Clerical Workers. This category as used by the United States Census covers tellers, machine operators of all kinds, statement and mail clerks, clearing house clerks, stock and bond quotation clerks, underwriting clerks, etc.

Insurance and Real Estate

Included in this group are 241 fire and marine insurance companies, 95 casualty and surety, 53 life, and 55 foreign insurance companies. Real estate companies, brokers, and agents of all kinds are counted as a part of this industry, as well as companies operating estates.

Real estate sales in San Francisco in 1947 numbered 18,858 for a dollar

volume of 228 millions. Life insurance continued its steady growth with almost seven million policies now in effect for all of California. These two industries employed 25,200 workers in 1947. Of these workers, 57.50 per cent were engaged in the clerical-sales field. The proportion, 20.09 per cent, of Proprietors, Managers, and Officials, is somewhat higher than in most other industries. This condition reflects a large number of independent own-account workers such as real estate and insurance brokers who operate their own offices. The comparatively large proportion of Service Workers in Insurance and Real Estate is indicative of the fact that some large companies operate and manage apartments, hotels, and office buildings.

Business and Repair Services

Business and Repair Services is a somewhat vague title to cover so vital an activity in the life of our community as this. This is the industry formed by the automotive parts and repairs firms, household and appliance repair shops, the firms actually servicing other business houses, the customs industries, and miscellaneous services. Sixteen thousand seven hundred persons or 3.58 per cent of the employed workers in 1947, were found in this group. The statements which follow will serve to clarify the business activities included here. Some difficulty was encountered in defining the businesses included in this classification, because the establishments included in successive censuses of business taken in 1933, 1935, and 1939 have been shifted from one category to another as experience pointed the way to improvements in the census method.

TABLE 21

Percentage Distribution by Occupational Category of Workers in Business and Repair Services Industries in San Francisco (Derived)

	PER CENT
Professional and Semiprofessional Workers	10.27
Proprietors, Managers, and Officials	13.67
Clerical, Sales, and Kindred Workers	28.16
Craftsmen, Foreman, and Kindred Workers	29.59
Operatives and Kindred Workers	9.25
Protective Service Workers	2.02
Service Workers	4.13
Laborers	2.71
Occupation not reported	.20
	100.00

Auto Storage, Rental, and Repair

The businesses covered by this title include automobile brake repair shops, auto laundries, paint shops, auto rental agencies, general automobile repair shops, storage garages, top and body repair shops, battery and ignition repair shops, tire repair shops, and other automotive repairs. Thirty-one hundred persons were found in this industry in 1947. Nearly 60 per cent of them are Craftsmen, mainly Mechanics; and another 16.52 per cent Operatives. The occupational pattern here runs from the highly skilled worker to the 9.06 per cent represented by the unskilled laborer such as the car washer.

Business Services and Advertising

The services under this heading include adjustment and credit bureaus and collection agencies, advertising agencies, blueprinting and photostat laboratories, booking agents' offices, coin-operated machine rental and repair services, court reporting and public stenographic agencies, dental laboratories,

detective agencies, disinfecting and exterminating services, duplicating, addressing, mailing and mailing list services. They include employment agencies, photo finishing laboratories, sign painting shops, window cleaning services, display services, and other services.

Because of changes in classification used in the census for the last three decades, it is almost impossible to compare the activities in this area of business with earlier years. The reader should note that 11,600 people were employed in these activities in 1947 and that Professional and Semiprofessional Workers and Proprietors, Managers and Officials accounted for about thirty per cent of employment. The fact that advertising activities are reported in this field accounts for the large proportion of artists and writers. Chart I also reveals the fairly complete assortment of Craftsmen found in the occupational pattern of these businesses.

Miscellaneous Repair Services and Hand Trades

In this industry are listed such businesses as locksmith shops, harness and leather goods shops, and saw and tool sharpening and repair shops, and shops for the repair of electric motors, typewriters, radios, refrigerators, upholstery, furniture, watches, clocks, jewelry, sewing machines and guns. Custom industries or hand trades such as awning and tent makers, cabinet making shops, hemstitching and embroidering services, machine shops, and small printing shops are reported here. Also included are welding shops, tinsmiths, mattress renovators, circulating libraries, and interior decorator services.

In 1947, 2,000 persons were at work in this field. Over 90 per cent of them were Craftsmen and Operatives, as would be expected in the repair business. Many Craftsmen, such as business-machine repair or service men, must not only possess the necessary skills but must sell service and good will, and promote the use of the product they maintain.

Personal Services

The Personal Services group combines the Hotel and Lodging House industry, the Laundry, Cleaning and Dyeing industry, the Miscellaneous Personal Services industry, and Domestic Services. This whole combination of Personal Services has shown a decline in the proportion of workers to total employment since 1940. At present this group represents 7.28 per cent of total employment. Domestic Service has been on a steady decline for years, and the power laundry business recently is showing the same downward trend.

TABLE 22

Percentage Distribution by Occupational Category of Workers in the Personal Services Industries in San Francisco (Derived)

	PER CENT
Professional and Semiprofessional Workers	2.96
Proprietors, Managers, and Officials	5.60
Clerical, Sales, and Kindred Workers	7.25
Craftsmen, Foreman, and Kindred Workers	3.02
Operatives and Kindred Workers	15.70
Protective Service Workers	.19
Service Workers	64.56
Laborers	.67
Occupation not reported	.05
	100.00

Hotels and Lodging Places

The hotels, apartment-hotels, guest houses, and other lodging places included in this group are primarily those reported under the California Unemployment Insurance Act. Thus the small boarding house with no outside paid help may not be represented in this group; but if at least one employee is paid, the employment will be included in the figures in Chart II.

The larger hotels of San Francisco are renowned the world over for their luxurious comforts, for their location in an exciting city, and for their excellent food and service. The occupational pattern for the hotel industry shown in Chart I, will indicate to the reader the occupations of primary importance. The schools of San Francisco, especially the City College, have long been aware of this industry's need for skilled workers, and the working relationship between schools and hotels has resulted in mutual benefits to employers and students.

Laundry, Cleaning, and Dyeing

The laundry group of industries in San Francisco includes power laundries, usually large and sometimes specialized in the services they offer; hand laundries; and the so-called French laundries, or specialized hand laundries for the laundering of fine garments; cleaning establishments, often offering dyeing services, and sometimes performing minor services in mending, altering or minimum tailoring.

Forty-eight hundred persons were employed in these services in 1947, a decrease since 1940 both in number of workers and in proportion of workers to total working population. This decrease indicates the effect of technological advance which has made it possible to do more work with fewer workers and the general increase in the number of self-service automatic laundering centers. Investigation in this field brought forth comments (from officials representing laundry owners) that the business has been beset with rising costs and lowered profits to the point where several companies recently have dissolved.

Miscellaneous Personal Services

This service group includes such services as barber shops, beauty shops, bath and massage establishments, funeral directors, embalmers, photographic studios, shoe repair shops, and other miscellaneous personal services. In 1947, 8,000 persons worked in this area of service. Of the Professional and Semi-professional group listed, most are funeral directors. The large bulk of workers are in the Service Workers category, mainly Barbers, Beauticians, and Manicurists.

Domestic Services

The Domestic Services group includes paid help of all kinds in the home. Some of this help is of the casual hourly or daily cleaning and washing type, and some employment in this service field is full-time.

In 1947 there were 11,000 persons listed in Domestic Service, a definitely smaller proportion of the working population than in 1940. Inspection of Chart I will indicate the titles which constitute the occupational distribution pattern for Service Workers. Those listed as Teachers in Domestic Service are tutors or governesses. Trained Nurses for elderly or ill people are com-

mon. The Clerical Workers represent social secretaries and estate workers. The largest group, 92.55 per cent, is in the Service Workers category. These maids, butlers, chauffeurs, and janitors, are included under the title Other Service Workers. The United States Census classifies domestic cooks here, reserving the Cooks-except-private-family caption for the cooks employed by commercial establishments.

Professional and Related Services

The furnishing of Professional Services occupied 38,400 persons among the gainfully employed workers in San Francisco in 1947. The activities of this group covered a wide variety of services, among them being (1) Theaters and Motion Pictures, (2) Miscellaneous Amusement and Recreation Services, (3) Educational Services, (4) Charitable, Religious, and Membership Organizations, (5) Medical and Health Services, and (6) Legal, Engineering, and Miscellaneous Professional Services.

The foregoing makes it clear that these services are so diverse in type that separate statements concerning these activities are required. The primary similarity among these services is that the personnel employed is predominantly Professional and Semiprofessional in occupational classification.

The group totals 38,400 persons or 8.22 per cent of the total employed force in 1947; it shows a slight numerical gain, but a decrease in its proportion to total workers during the seven year period, 1940-47.

TABLE 23

Percentage Distribution by Occupational Category of Workers in the Professional and Related Services Industries in San Francisco (Derived)

	PER CENT
Professional and Semiprofessional Workers	60.04
Proprietors, Managers, and Officials	5.40
Clerical, Sales, and Kindred Workers	15.89
Craftsmen, Foreman, and Kindred Workers	1.58
Operatives and Kindred Workers	2.68
Protective Service Workers	.35
Service Workers	12.44
Laborers	1.42
Occupation not reported	.20
	100.00

Theaters and Motion Pictures

The legitimate theater, vaudeville, the motion picture theaters, and the makers of motion pictures for advertising purposes are placed in this category. The production of entertainment and educational films is classified under the caption, Other Manufacturing Industries.

Twenty-six hundred persons were in this field in July, 1947. Not quite 15 per cent of the persons in this business are in the Professional or Semiprofessional classification. They are primarily actors, artists, writers, musicians, and entertainers. The Craftsmen—6.11 per cent—are primarily stagehands, scenery builders, and maintenance workers. In the Operatives group are found the motion picture projectionists.

Miscellaneous Amusement and Recreation

In this group are the recreational agencies of the community such as the governmental playground, summer camp, and youth recreation activities, and the private, or endowed recreation and amusement resources of the city. The census lists in this section, too, the miscellaneous professional athletics such as boxing, baseball, football, and other sporting contests. Beach concessions, carnivals, penny arcades, and related amusement centers also are included. Close inspection of Chart II will show the occupational emphasis in this field.

The 3900 workers in this field are distributed in the typical professional pattern with 53.08 per cent in the top professional and managerial categories. Much semiskilled help is used by this industry as waiters, refreshment vendors, ushers, and cleaners and janitors.

Educational Services

This category includes the public schools, parochial and private schools, institutions of higher learning, and private and endowed schools such as music schools, business colleges, medical schools, trade schools, etc. Small training schools operated by business concerns solely for the training of their workers are not included.

In July of 1947 there were 8,700 persons engaged in this work, or 1.86 per cent of total employment. Of those in this group, 83.74 per cent were in Professional and Semiprofessional categories; these are teachers and technical assistants. The rest of the workers in this industry, as shown in Chart I, perform the contributory services that supply and maintain the teaching function. It is noticeable that the total working force in educational services increased numerically in 1947 over the 1940 total, but that the proportion of educational workers to all workers in San Francisco decreased between 1940 and 1947.

Charitable, Religious, and Membership Organizations

This category includes charitable organizations for relief and welfare, other welfare and social service agencies, churches, and fraternal and mutual benefit societies and lodges. Here also are the union and employer groups which have staffs of paid workers, luncheon clubs, and other private clubs that employ people.

The workers in this field amount to 4,300, of whom 30.84 per cent were professional. The largest group in this category is composed of clergymen and religious leaders, with the second largest number consisting of social and welfare workers. The large group of service workers indicates the number of employees in the membership clubs and charitable institutions of the city.

Medical and Health Service

The medical services performed by physicians and surgeons in all their specialties, as well as the semiprofessional services of healers and medical service workers, are brought together under this category. Hospitals, rest homes, and sanitoria are included, as well as the trained and practical nurses who staff them. Clinic or group medical service and the service provided by individual physicians are reported in this section. Government hospitals and medical services are found here.

In 1947, 12,400 persons were at work providing this type of service. Although the number of medical service workers increased between 1940 and

1947, the proportionate increase was small and lagged far behind the increase in total population of the community. Schools and facilities for training medical personnel have a limit to their capacities, and time is required to turn out competent doctors, dentists, and nurses. A shortage of such services is to be expected for some years.

Chart I shows the occupational components of medical service in percentages. Doctors, Nurses, Dentists, and Medical Technicians make up nearly 70 per cent of the entire working force. The only other significant groups are the Service Workers with 14.02 per cent and the Clerical Workers with 9.46 per cent.

Lawyers, Engineers, and Miscellaneous Professional Services

This caption combines a group of professional service, laboratory, and technical service firms operated by professional persons, and does not include lawyers or engineers who work as salaried employees for particular corporations. The services described here are generally performed by a professional person or by firms acting as consultants or experts in special fields.

Included in this category are the special services performed by Lawyers, Architects, Attorneys, Artists, Authors, Designers, Engineers of all sorts, semiprofessional technical services, and Laboratory Technicians.

Workers in this field numbered 3,900 in 1947, according to the California State Employment Service. Sixty per cent of these were the professional personnel, and the remainder were the contributing workers who staffed their offices and establishments. In the course of this study, repeated statements of the need for qualified Engineers, Draftsmen, and Engineering Technicians were encountered.

Government Services (n.e.c.)

The governmental services described herein have been set forth under only two headings, Postal Service and Government Services (not elsewhere classified.)

The first, Postal Service, is specific in the functions it performs.

The second heading, Government Services (n.e.c.) is a group category. We found it impossible to secure from the various state and national agencies a clearer statement concerning the specific governmental agencies in this community and the number of workers in each. Thus this heading combines all the services in this city of the United States Bureau of Internal Revenue, the United States Department of Agriculture, the California State Fish and Game Commission, the San Francisco Civil Service Commission and many others. Government Services (n.e.c.), however, does not include all those employed by governmental agencies. Persons are included in this classification only if they are engaged in activities which are peculiarly governmental functions. Governmental agencies which are engaged in activities commonly performed by private enterprises are included in the industrial classification in which their activities fall. For example, employment in the tax collector's office is included in the industrial classification Government Services (n.e.c.), but employment by a municipally-owned transportation system is classified in the Street Railway and Bus Lines category. All military personnel are excluded from Charts I, II, III, and IV, and from the tables based thereupon.

TABLE 24

Percentage Distribution by Occupational Category of Workers in Government Services (n.e.c.) in San Francisco (Derived)

	PER CENT
Professional and Semiprofessional Workers	9.88
Proprietors, Managers, and Officials	9.31
Clerical, Sales, and Kindred Workers	42.99
Craftsmen, Foremen, and Kindred Workers	3.36
Operatives and Kindred Workers	2.45
Protective Service Workers	23.13
Service Workers	3.49
Laborers	4.93
Occupations not reported	.46
	100.00

Postal Service

This tremendous business activity of the United States Government as classified here includes all the local functions of the Postal Service and employed 5,100 persons in July, 1947. Inspection of Chart I will indicate the proportions of workers in various occupations within the service. The bulk of the personnel, 86.35 per cent, are clerical workers.

Government Services (n.e.c.)

This is the classification in which we find all city, state, and national services which are peculiarly governmental and whose workers cannot be classified under any other appropriate industrial heading. Among them are the customs and immigration services, courts, tax collectors, food and drug inspection agencies, veterans services, police, license bureaus, etc.

The 24,900 workers in this section show not only a tremendous numerical increase but also a proportionate increase since 1940. Most of the percentages for the eight classes of workers shown under Government Services (n.e.c.) on Chart I are self-explanatory. It may be well to point out, however, that the 27.80 per cent Service Workers shown on Chart I include Firemen, Policemen, Detectives, Guards, Watchmen, and Secret Service Men.

Chapter V

Employment by Occupations

In an earlier chapter, the point was made that the industries described in this study form the framework within which all the economic life and activity of our community revolve. Yet the young student who is seeking his niche in life must think primarily in terms of specific occupations. The work a man does determines in large part his standard of living, defines his circle of acquaintances, colors his views of politics, and affects his social status. A man's occupation may determine his place of residence and influence the amount and kind of education he can give his children. It may, in severe instances, control the amount and quality of food he and his family eat.

There is little wonder, then, that students of education, sociology, and economics have long shown interest in studing the occupational patterns and trends prevailing in the United States.

In the interest of better vocational guidance, the teacher, counselor, and the placement officer would like to know how many job openings in each occupation will be available on the Monday following graduation. Curriculum workers and vocational educators join in seeking to find the answer to this question in order that the school program may be attuned more closely to the needs of the pupils and the community. But phrasing the question is far easier than answering it.

What factors determine the kinds and number of jobs that will be available during a given period? Among the factors which affect the number of workers needed in an occupation are

1. Normal retirement because of age, illness, or death.
2. Early retirement because of disability, marriage, pregnancy, etc.
3. Technological change.
4. Regulatory policies adopted by government bureaus, industrial associations, professional societies, and labor organizations.
5. Rate of population growth.
6. Migrations of industries or workers.
7. Changes in tastes and styles, or consumer demand.
8. Changes in per-capita wealth.
9. Salaries, wages, and working conditions.
10. Business expansion and retrenchment as affected by general economic conditions.

The relative weight which should be placed on each of these factors in attempting to determine the type and extent of occupational opportunity which may exist during a particular period, is difficult to determine. Examining the factors listed above, we may understand why Anderson and Davidson (21) have concluded that much more research is needed to provide the data required to answer these questions.

> "Educators are not alone to blame for the inadequacies of occupational adjustment. Employers and workers have both been slow to develop a consciousness and willingness to approach the problems of supply and demand for workers and the solution of industrial employment in an intelligent manner, making use of all the techniques of the social sciences and the findings of investigations in their efforts to establish a satisfactory occupational situation. The field of personnel problems in their larger industrial aspects is only now being intensively explored.
>
> "It appears that this fundamental area of occupational adjustment cannot be fully investigated, or its needs met, until scientific study is broadened considerably—and an adequate mechanism is set up to permit the practical application of suggestions which flow from such findings."

These warnings concerning the complexity of the problem of determining job opportunity were given serious consideration but did not relieve us of our responsibility to offer some suggestions which might be useful. In our search for information and suggestions which would shed some light on the problem, we approached those public agencies which deal with employment. Responsible persons in these agencies insist that information of this sort is not now available.

Discussion revealed a number of facets of the problem which must be considered. Among these are:

1. The number of jobs available during a period is composed of those needed to accomplish planned expansion and those necessary to maintain the employed force at its current strength. Chapter VI deals with the direction and magnitude of expansion in various occupations.
2. "Turnover" as used by different people means different things. To some, it has reference to the "hiring, loss, and replacement of a company's working force;" to others, it relates to the rate at which workers retire from the employment picture; and to still others, it relates to the switch of workers from one occupation to another. Obviously, more precise use of an acceptable definition is needed.
3. Most business concerns and labor organizations do not keep much objective information about turnover. Much data concerning average age of workers, normal work expectancy, and other data bearing on the turnover problem must be available before one can draw valid conclusions in this field.
4. Many organizations consider the rate of labor turnover to be a business secret which should be closely held because of its relationship to operating costs and efficiency.

The California State Employment Service has attempted to gather certain occupational data in regard to turnover which would be helpful, but the few returns received were so inconsistent as to be practically valueless. The Service plans another more comprehensive attempt in this field some time in 1949. It does publish monthly reports in its *San Francisco Labor Market Summary*

(32), showing the total placements and total openings received each month. These are reported for six occupational fields, (1) professional, (2) clerical, (3) service, (4) skilled, (5) semiskilled, and (6) unskilled. These reports are useful, but not complete, for it must be remembered that the California State Employment Service does not receive information on all "hires" in the community. Many workers are hired as a result of newspaper ads and private agency services; craftsmen are rather generally placed through their unions.

This problem has been recognized in a study made by C. Kenneth Beach for the University of the State of New York. (37)

> "*Estimating Annual Employee Replacement:* Significant from the standpoint of the entire survey is the problem of estimating the annual flow of employees into technical positions. Previous studies of labor supply and turnover have not provided exact information on annual employee replacement. Monthly statistics on labor turnover—which are commonly provided —do not reflect net increases or decreases in the labor force. The movement of employees from one job to another of similar type, for example, does not present a replacement problem in the same terms as the loss of an employee because of death, disability, obsolescence, or retirement. Estimating the flow of newly-trained workers into the labor force as replacements for permanent employee losses is, however, a crucial problem for institutions responsible for employee training.
>
> "For the purposes of the present study, it has been estimated that the net replacement rate in technical occupations is five per cent. This rate assumes an average work life of 20 years in technical occupations. The refinement of this estimate must be postponed until more exact information can be obtained on the characteristics of technical employment which affect the rate of employee replacement."

This rough estimation of the length of an average working life is based on technical occupations, only, and not on all occupations. It does not suggest what turnover should be expected in clerical, professional, or service occupations. Mosher and Kingsley (28) show that, in federal service, institutional employees are a very unstable group.

The solution to the problem of occupational turnover is not yet available. Detailed, specific information on the movement of personnel from one occupation to another, on the change from one occupation to the same one in a different industry, and on the retirement of individuals from the labor force, does not now exist in any useful form. There are signs, however, that private businesses and governmental agencies are beginning to recognize the need for this information, and we can only hope that enough time and money will become available to carry out such a task.

Although the foregoing paragraphs have shown a weakness in one area of society's knowledge of occupations, nevertheless, there is much useful information that should be organized for the use of counselors and teachers.

The Fourth Census of the United States—1820 was the first to secure occupational information in this country. The census of 1850 enumerated

individuals with their occupations for the first time; before that time the earlier census procedure was to list only the head of each family and his occupation. In 1850, only 323 occupations were listed. By 1939, when the *Dictionary of Occupational Titles* was published by the United States Department of Labor, the list of separate job titles defined was 17,452. Alternate titles increased the entire list to 29,744. The *Sixteenth Census of the United States—1940,* on which the present investigation is based, used 451 occupations in its enumeration. These were arranged under eleven major occupational groups.

Our study reports on eight major occupational groups, namely, (1) Professional and Semiprofessional Workers, (2) Proprietors, Managers, and Officials, (3) Clerical, Sales, and Kindred Workers, (4) Craftsmen, Foremen, and Kindred Workers, (5) Operatives and Kindred Workers, (6) Protective Service Workers, (7) Service Workers, and (8) Laborers. Farm managers and tenants are incorporated with Proprietors, Managers, and Officials; farm laborers are consolidated with Laborers; and domestic service workers are included with Service Workers.

The 87 occupations which are listed on the margins of the large occupation-industry charts included herein were selected from the 451 titles mentioned above. These 87 titles were then grouped under the eight occupational categories named in the preceding paragraph. The *Classified Index of Occupations,* published by the Bureau of The Census in 1940, lists, with each of the occupations we have used, other more specific occupational titles in the same field of work.

Chart II provides for a study of the occupational pattern of San Francisco's business world that has not heretofore been possible. Across the top of the chart are headings listing 67 major industrial groups; these groups include all businesses, manufacturing establishments, and commercial services found in our community. The top number found under a heading, for example, 4,000 under Utilities, is the number of workers of all classes employed by all the utility companies according to estimates by the California State Employment Service.

The left-hand column on Chart II provides the spread of occupations studied. By following from left to right across the page, one is enabled to see how a particular occupation is represented numerically in each industry. This affords the counselor and student a fine opportunity to study an occupation in terms of its work environment, its stability based upon its distribution among many industries, and the specialties related to the occupation. Reading horizontally along the line for a particular occupation will inform us concerning its distribution among industries. On the other hand, a vertical reading of the industry column illustrates the occupational composition of an industry. In working with students, the teacher or counselor can gain from reading this column an idea of the occupational composition of an industry with suggestions of promotional possibilities and of the relative importance of an occupation within its industry.

For assistance in examining the occupational titles used in this study, the reader is referred to the *Dictionary of Occupational Titles,* Parts I and II. Part I, which is arranged in alphabetical order according to occupational title, furnishes a statement of the duties performed in a given occupation and

the code number for that occupation. Part II lists all occupations according to code number sequence, and thus, similar occupations, or those belonging to the same occupational family, will be listed adjacent to each other in Part II. In other words, Part I furnishes us with a description of a given occupation and Part II, by listing similar occupations under the same heading, will lead us to related occupations. For example, the student who expresses an interest in bookkeeping may be referred to Part I of the *Dictionary of Occupational Titles* to find a statement of the duties performed by a general Bookkeeper and the code number for that occupation, 1-01.02, which is used in Part II. Turning to Part II and locating the code number, 1-01.02, a student will find following this code number three pages listing specific occupations which are similar to that of Bookkeeper. If the student should express an interest in one of the other specific occupations listed among these, he may refer again to Part I in order to find a detailed statement of the specific duties performed in that occupation. In a similar way other occupational families may be located.

One characteristic of the occupational pattern today which should be mentioned specifically at this point is the increasing proportion of women in employment. Paul Glick of the United States Bureau of the Census reported recently that only three-fifths of the households in the country are supported by the earnings of the husband alone. Glick went on to say, "Married women, for the first time in United States history, outnumber single working girls as wage-earners."

Coming closer to home, the following tables will give us some insight into the extent of employment of women in the various occupations and industries of the Bay Area.

Table 25, Proportion of Those Employed in San Francisco Industries and Occupations Who are Women—1940, is an analysis of the place taken by women in employment. The extreme right-hand column shows the proportion of women workers to total workers in each of the eight major occupational categories. Thus, 45.24 per cent of all Professional and Semiprofessional Workers, and 44.86 per cent of all Clerical, Sales, and Kindred Workers in San Francisco in 1940 were women. Other sections of the table indicate that 5.88 per cent of the Professional employees in Agriculture, Forestry, and Fishing were women, 36.41 per cent of the Operatives in the Manufacturing industry were women, 15.70 per cent of all employees in the Transportation, Communication, and Utilities industry in 1940 were women.

TABLE 25

Proportion of Those Employed in San Francisco Industries and Occupations Who Are Women—1940

	Agriculture, Forestry, and Fishing	Mining	Construction	Manufacturing	Transportation, Communications, and Utilities	Wholesale and Retail Trade	Finance, Real Estate, and Insurance	Business and Repair Services	Personal Services	Professional and Related Services	Government Services (n.e.c.)	Total
	PER CENT	PER CENT	PER CENT	PER CENT	PER CENT	PER CENT	PER CENT	PER CENT	PER CENT	PER CENT	PER CENT	PER CENT
Professional and Semiprofessional Workers	5.88	—	1.27	13.72	7.72	18.20	15.92	28.24	40.47	56.14	36.41	45.24
Proprietors, Managers, and Officials	.33	2.94	1.85	8.40	2.98	13.72	45.28	11.23	29.04	17.98	5.99	16.70
Clerical, Sales, and Kindred Workers	58.62	56.72	50.82	38.43	49.72	42.54	46.22	51.64	35.53	68.64	41.12	44.86
Craftsmen and Kindred Workers	—	—	.54	3.38	1.00	11.14	3.20	1.26	6.06	8.51	.57	3.10
Operative and Kindred Workers	11.43	2.42	1.09	36.41	.95	23.67	7.41	6.78	47.85	38.03	2.77	25.77
Protective Service Workers	—	—	3.13	—	.27	4.51	.96	2.47	—	2.91	.63	.39
Service Workers except Protective	16.67	—	6.25	11.32	7.59	26.41	11.40	1.97	63.51	33.11	22.32	42.01
Laborers	2.02	—	.45	6.25	.57	3.74	—	.63	20.80	2.33	—	2.40
Per cent employment represented by women	4.52	1.73	2.72	24.52	15.70	28.76	39.34	14.79	54.11	51.93	22.64	30.58

In an attempt to discover what proportion of workers—in 1947—were women, the analysis shown in Table 26, Analysis of Various Occupational Categories in the San Francisco-Oakland Metropolitan District to Show the Proportionate Representation of Women—1940 and 1947, was made. The reader is cautioned that this analysis can serve at best only as a guidepost. The column for 1940 in Table 26 is closely comparable to the "Total" column in Table 25. Since the employment of women in the two areas had similar characteristics in 1940, the reader may wish to infer that such is the case in 1947 and, as a result, to read into the figures in the "1947" column of Table 26 a suggestion of the extent to which women currently are present in various occupations in San Francisco. There has been a noticeable trend toward an increase in the number of occupations open to women and in the proportion of women to total employment in specific occupations.

TABLE 26

Analysis of Various Occupational Categories in the San Francisco-Oakland Metropolitan District to Show the Proportionate Representation of Women—1940 and 1947

	1940	1947
Professional and Semiprofessional Workers	40.8	41.3
Proprietors, Managers, and Officials	14.6	16.6
Clerical, Sales, and Kindred Workers	43.2	57.4
Craftsmen and Kindred Workers	2.3	2.2
Operative and Kindred Workers	20.8	23.4
Service Workers (a)	43.2	46.1
Laborers	2.8	4.2
Per cent of employment represented by women	27.6	32.0

(a) Includes: Protective Service Workers
Service Workers, except Protective.

In the following pages, the specific occupational titles surveyed in this study have been outlined as a ready reference for teachers and students. The reader will find that the *Dictionary of Occupational Titles* code number has been indicated after each occupational title. The reader will note that code numbers are not shown for all of the occupational categories because census classifications sometimes cut across code classifications used in the *Dictionary of Occupational Titles*. Then follows a short description of the duties, qualifications, educational requirements, trends in employment, ways of entering the field, and a brief statement concerning salaries. For the descriptions of individual occupations, the authors of this study have made frequent use of the information contained in the *Dictionary of Occupational Titles;* for industrial definitions frequent reference was made to the *Alphabetical Index of Occupation and Industries.* (1) In most cases brief suggestions for further reading have been listed. The books suggested have been selected on the basis of their appeal to students on the secondary school level.

In the upper right-hand corner of each of the following pages is a table. The percentages shown therein indicate the proportion of all people in that occupation who are employed by the industry specified. In 1947 Actors and Actresses, for example, had 4.09 per cent of their group employed by the Transportation, Communications, and Utilities industry-group; in this case, the radio broadcasting business.

PROFESSIONAL AND SEMIPROFESSIONAL WORKERS

0-01. through 0-69.

United States employment in 1940—3,352,580

San Francisco employment in 1947— 37,760

According to *The Classified Index of Occupations,* published in 1940 by the United States Department of Commerce, Bureau of the Census, a "professional worker is (1) one who performs advisory, administrative, or research work which is based upon the established principles of a profession or science, and which requires professional, scientific, or technical training equivalent to that represented by graduation from a college or university of recognized standing; or (2) one who performs work which is based upon the established facts, or principles, or methods in a restricted field of science or art, and which work requires for its performance an acquaintance with these established facts, or principles, or methods, gained through academic study or through extensive practical experience, one or both."

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	.13
Mining	.38
Construction	2.55
Manufacturing	8.25
Transportation, Communication, and Utilities	6.07
Wholesale and Retail Trade	5.36
Finance, Insurance, and Real Estate	1.11
Business and Repair Services	4.55
Personal Services	2.66
Professional and Related Services	61.09
Government Services (n.e.c.)	7.85
	100.00

For the nation as a whole, the group of professional workers comprises about 7 per cent of the working force and for San Francisco about 8 per cent. In San Francisco women constitute more than 40 per cent of the workers in the professions and semiprofessions. The large proportion of women in the professional group in San Francisco is explained by the fact that teachers and trained nurses, numerically large groups, are usually women.

Trends in employment in professional and semiprofessional occupations are indicated in the pages following. Change for these workers is usually slower than in other types of work, probably because of the long period of preparation required, which in itself frequently limits the supply of workers. Entry into a professional occupation, therefore, is difficult, but once having become established, the professional worker finds that competition is less severe than it is in other fields.

ACTORS AND ACTRESSES 0-02.

United States employment in 1940—19,232
San Francisco employment in 1947— 171

This group includes such artists as actor, bit man, comedian, director, impersonator, vaudeville actor, stage manager, theatrical man or theatrical woman. The legitimate theater, motion pictures, vaudeville, radio, television, and cabarets are the principal employers of the artists in this category.

This profession is barely holding its own numerically. There are such varied avenues of entrance into this field that appropriate training is difficult to suggest. The successful actors in radio and in the theater usually are cultured persons with a college education. Several departments of dramatic arts in colleges and some private dramatic schools are satisfactory, and from time to time their graduates became successful actors. Frequently entrance into the field is made through work in the little theater movement.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	—
Transportation, Communication, and Utilities	4.09
Wholesale and Retail Trade	—
Finance, Insurance, and Real Estate	—
Business and Repair Services	—
Personal Services	—
Professional and Related Services	95.91
Government Services (n.e.c.)	—
	100.00

The requirements of voice, character, bodily grace and control, natural talent and industry are demanding, and only those with an unyielding urge to act should attempt to make a living in this field.

The outlook for employment in this field is not especially bright. Opportunities for actors in the films, radio, and the legitimate theater are fairly well confined to a few large centers in the country. Earnings may run from $75 a week up to several thousand dollars per week.

For further information see:

Recent Occupational Trends by H. D. Anderson and P. E. Davidson. Stanford University Press, Stanford, California, 1945.

Vocations for Girls by M. R. Lingenfelter and H. D. Kitson. Harcourt, Brace, New York, 1939.

Your Career in Radio by H. V. Carlisle and C. C. Rice. E. P. Dutton, New York, 1941.

ARCHITECT 0-03.

United States employment in 1940—21,976
San Francisco employment in 1947— 307

The architect draws up plans and specifications and often supervises the erection of buildings, homes, or industrial plants. In this planning, he must see to the safety, beauty, utility, materials, and costs of the building. Professional training usually requires college graduation plus experience and specialization. Architects often enter the profession after appropriate training as a draftsman in the office of a good firm. 42 states require licenses based upon examinations. California's examination requires four days and covers (1) Architectural Design, History, and Theory, (2) Architectural Engineering, (3) Architectural Practice and Mechanical Engineering. In 1937 the average annual earnings of architects was $5,000. In 1947, cities, states, and the national government paid from five to nine thousand dollars a year for an architect. Architects most frequently are (1) self-employed as consultants, (2) employed by construction firms and by other architects, and (3) employed by governmental agencies. The census for the last two decades has shown a definite increase in the number of female architects. The worker in this occupation frequently specializes in marine architecture, landscape architecture, or residential or industrial architecture.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	1.30
Mining	—
Construction	15.64
Manufacturing	5.21
Transportation, Communication, and Utilities	2.93
Wholesale and Retail Trade	1.96
Finance, Insurance, and Real Estate	3.91
Business and Repair Services	1.30
Personal Services	—
Professional and Related Services	56.68
Government Services (n.e.c.)	11.07
	100.00

For further information see:

On Being an Architect by William Lescaze. G. P. Putnam, New York, 1942.

Architecture, a Profession and a Career by American Institute of Architects. The Octagon, Washington, D.C., 1945.

Dictionary of Occupational Titles, United States Employment Service. Government Printing Office, Washington, D.C., 1939.

Part I—See "Architect"
Part II—See "0-03."

ARTISTS AND ART TEACHERS 0-04.

United States employment in 1940—62,485
San Francisco employment in 1947— 1,228

Artists and art teachers have been increasing in numbers since the turn of the century, but the census points out that the group is so vaguely defined and the professional standards and requirements are so fluid, that it is difficult to say just how much of an increase has been made.

The art work discussed here divides into two general fields, applied arts and fine arts. The fine arts of design are usually thought of as painting, sculpture, and sometimes architecture. The applied arts include commercial art, illustration, fashion design, cartooning, interior decoration, and window display. Under this general heading have been placed art teachers (other than those in public schools), curators, art restorers, and art appraisers.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	9.36
Transportation, Communication, and Utilities	.33
Wholesale and Retail Trade	6.43
Finance, Insurance, and Real Estate	—
Business and Repair Services	58.55
Personal Services	.65
Professional and Related Services	24.19
Government Services (n.e.c.)	.49
	100.00

Education and training for entry into this field must rest upon a basis of genuine talent and feeling. The particular school or scope of training is dependent upon the specialized interests and goals of the student. Salaries paid vary widely. In the fine arts, artists often have difficulty making a living; in the commercial field, artists may start at forty or fifty dollars a week and go on, if they are successful, to make tremendous annual incomes. Teachers in this state frequently earn from $2,400 to $5,700 a year.

The economic outlook for commercial artists is good, although the entrant into the field must expect stiff competition.

For further information see:

Careers in Commercial Art by J. I. Biegeleisen. E. P. Dutton, New York, 1944.

Heads and Tales by Malvina Hoffman. Charles Scribner's Sons, New York, 1936.

Interior Decoration by Sherrill Whiton. Bellman Publishing Co., New York, 1941.

AUTHORS, EDITORS, AND REPORTERS 0-06.

United States employment in 1940—77,619
San Francisco employment in 1947— 1,310

Of the writers listed in the 1940 Census, 14,126 were free-lance writers; the other 63,493 were editors and reporters. The largest concentration of such people is in the East, especially in New York. About three-fourths of those in the group are males.

The free-lance writer is the author of novels, articles, books, plays, poetry, etc., which he creates and sells. The editor and reporter work for newspapers, periodicals, and journals. Many times the free-lance writer is one who developed his skill while at work for a newspaper or magazine and later set out on his own.

In San Francisco about five hundred to six hundred writers are employed on metropolitan newspapers, and the rest of the 1,310 in this category either are employed by advertising and publishing houses or are free-lancing. Incomes in this field vary widely, running from $50 per week to $200 and more per week on the large city papers. Independent writers sometimes make a fortune from one book.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	56.72
Transportation, Communication, and Utilities	3.21
Wholesale and Retail Trade	2.37
Finance, Insurance, and Real Estate	.46
Business and Repair Services	19.92
Personal Services	.15
Professional and Related Services	15.72
Government Services (n.e.c.)	1.45
	100.00

In general, a college education is the basic educational requirement in this field. Several fine colleges of journalism exist in the United States. The interested reader should investigate these when planning his education.

The economic outlook for beginners in journalism is not bright. The number of newspapers in the country has dropped steadily for years, although some of the slack has been taken up by an increase in the number of small staff-written magazines.

For further information see:

Nose For News by Elliott Arnold. Row, Peterson, New York, 1941.

Lady Editor by Marjorie Shuler et al. E. P. Dutton, New York, 1941.

Jobs in Rural Journalism by E. S. Watson. D. Appleton-Century, New York, 1939.

Students and Occupations by E. G. Williamson. Henry Holt, New York, 1937.

Careers for Women in Journalism by Iona R. Logie. International Textbook Co., Scranton, Pa., 1938.

CHEMISTS, ASSAYERS, AND METALLURGISTS 0-07.

United States employment in 1940—60,005
San Francisco employment in 1947— 607

Organic chemists work with biological processes, dairy products, foods, nutrition, pharmaceutics, paints and varnishes, petroleum, dyes, and electrochemical processes. Inorganic chemists deal with substances such as bases, minerals, rocks, metals, acids, and salts. The assayers and metallurgists are interested in the examination and extraction of metals from ores and in the refining of these materials.

Industrial Distribution of These Workers

	PER CENT
Agriculture, Forestry, and Fishing	.16
Mining	1.98
Construction	—
Manufacturing	52.15
Transportation, Communication, and Utilities	3.47
Wholesale and Retail Trade	7.59
Finance, Insurance, and Real Estate	—
Business and Repair Services	18.15
Personal Services	.16
Professional and Related Services	7.76
Government Services (n.e.c.)	8.58
	100.00

Entry into these occupations requires a high school diploma, a four-year degree from one of the universities or colleges offering recognized courses in these fields, and, frequently, the passing of a state examination prior to issuance of a license. Another outlet for employment often is to be found in the laboratories of large companies or manufacturing establishments, where the young chemist is employed in a variety of pursuits designed to give him a broad experience in the field. The young chemist may find employment with the government, in teaching, with manufacturing and processing establishments, or with research foundations. In 1946, the median wage for chemists ran from $230 per month for those with under one year of experience, to $550 per month for those with 25 to 30 years of experience. Of course, many chemists made much more; the upper 10 per cent in the nation probably averaged nearly $1,000 per month. The economic outlook for these workers is exceptionally good. The postwar plans in industry for expansion of research laboratories and the probable expansion of government-sponsored research programs may continue to support the need for well-trained chemists. Metallurgists also are expected to find a steady demand for their services for some time to come.

For further information see:

Engineering Profession in Transition by Andrew Fraser. Engineers Joint Council, 33 W. 39th St., New York, 1947.

Occupational Outlook Information, Veterans Administration Manual M 7-1 and supplements. Government Printing Office, Washington, D.C., 1946.

Careers in Science by Philip Pollack. E. P. Dutton, New York, 1945.

Plastics in the World of Tomorrow by Burr W. Leyson. E. P. Dutton, New York, 1945.

CLERGYMEN 0-08.

United States employment in 1940—140,077
San Francisco employment in 1947— 817

By 1940, clergymen the country over had lost 5,794 from their peak number in 1930. They had declined in their proportion to all professional workers to somewhat less than 4 per cent. The percentage of women in the profession had increased slightly during the census period 1930-1940.

The clergy is one of the oldest standard professions, and a clergyman is known to us commonly as a minister, pastor, priest, rabbi, rector, preacher. The services required of a clergyman are, in general, concerned with ministering to the spiritual needs of a parish or the membership of a church. In recent times, clergymen and religious workers have been used extensively by religious organizations in positions of leadership in youth work, community recreation, and in general religious welfare activities. Many men and women find an opportunity to do missionary work for their church in this country or abroad.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	—
Transportation, Communication, and Utilities	—
Wholesale and Retail Trade	—
Finance, Insurance, and Real Estate	—
Business and Repair Services	—
Personal Services	—
Professional and Related Services	99.63
Government Services (n.e.c.)	.37
	100.00

The education required for this profession varies with the religious body to which the novice is dedicating himself. In general, it should be pointed out that from the earliest times the clergymen have been the well-educated and well-schooled members of a community. The young man or woman who is interested in religious service as a lifework would do well to inquire of the leaders in his own church as to the personal requirements for, and the educational path to, such service.

The income of a clergyman generally is very small. Frequently, housing is provided, and in some communities food and other services are contributed to the support of the clergyman.

The future need for clergymen will be influenced by the fact that about 60 per cent of the people in this country have no religious affiliation. This fact offers many opportunities for the young man or woman who feels "called." For further information see:

Vocations for Boys by H. D. Kitson and M. R. Lingenfelter. Harcourt, Brace, New York, 1942.

The Minister's Job by A. W. Palmer. Willett Clark and Co., Chicago, 1937.

DENTISTS 0-13.

United States employment in 1940—70,601
San Francisco employment in 1947— 1,005

The modern dentist is a highly trained professional medical man, qualified by education, experience, and legal process to care for teeth. He examines and diagnoses for diseases of the teeth and mouth; he cleans, fills, extracts, repairs, and replaces teeth and performs corrective work on them.

The only avenue of entrance to dentistry in the United States is through admission to, and graduation from, a dental school, and the securing of a license based upon successful completion of a state examination. Six years of college and dental school above the high school are required. Good eyesight, manual dexterity, a pleasant personality, and the physical and emotional ability to stand and do exacting work are required for dentistry.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	—
Transportation, Communication, and Utilities	—
Wholesale and Retail Trade	—
Finance, Insurance, and Real Estate	—
Business and Repair Services	.10
Personal Services	—
Professional and Related Services	99.30
Government Services (n.e.c.)	.60
	100.00

The salary is good; dentists in civil service for cities, states, and the national government received from $400 to $500 per month in 1947. Many dentists in private practice make much more. On entering the field, the dentist may set up his own office, an expensive procedure; he may begin as assistant to, or partner with, a well-established dentist; he may enter government service; or he may teach or perform research.

Dentists as a group have not increased in proportion to the population. The outlook for many years is excellent for the man or woman with the proper qualifications to succeed in dentistry. Related fields are dental hygienist and dental assistant.

For further information see:

Medical Occupations by Lee M. Klinefelter. E. P. Dutton, New York, 1938.

Students and Occupations by E. G. Williamson. Henry Holt, New York, 1947.

Vocations for Girls by M. R. Lingenfelter and H. D. Kitson. Harcourt, Brace, New York, 1939.

CIVIL ENGINEERS 0-16.

United States employment in 1940—89,042
San Francisco employment in 1947— 1,241

Civil engineers design and direct the construction of such facilities as roads, railroads, buildings, tunnels, bridges, dams, canals, water-supply, and sewerage systems.

Some of the engineering branches or specialties closely related to civil engineering, and frequently referred to under this general heading, are architectural engineer, city planning engineer, structural engineer, sanitary engineer, highway engineer, and construction engineer.

The education for this profession should begin in high school and culminate with a minimum of four years and a B.S. degree from one of the 150 or more universities offering the engineering course. Physics, mathematics, and chemistry form a major portion of the work; the engineer is expected also to have a sound general education.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	.08
Mining	.65
Construction	39.43
Manufacturing	4.68
Transportation, Communication, and Utilities	10.40
Wholesale and Retail Trade	1.37
Finance, Insurance, and Real Estate	3.15
Business and Repair Services	1.05
Personal Services	—
Professional and Related Services	8.71
Government Services (n.e.c.)	30.48
	100.00

In California, civil and structural engineers are required to secure a license by passing a 16-hour written examination. Entry into the field frequently is through beginning jobs in the drafting room, research laboratory, testing departments, field engineering projects, construction jobs, etc. Twelve per cent of all the civil engineers in the United States in 1946 were in California. In 1947, civil engineers working for local, state, or national governments were earning about $500 monthly. Independent consulting engineers may earn up to $20,000 or $25,000 per year.

The outlook for employment in this field probably will be good for five or six years, but then, as the void in the profession caused by the war is filled, demand for engineers may fall off sharply.

For further information see:

The Engineering Profession in Transition by Andrew Fraser. Engineers Joint Council, 33 West 39th St., New York, 1947.

The Engineer by John Hays Hammond. Charles Scribner's Sons, New York, 1924.

Engineering Opportunities by R. W. Clyne. D. Appleton-Century, New York, 1939.

ELECTRICAL ENGINEERS 0-17.

United States employment in 1940—55,667
San Francisco employment in 1947— 742

Electrical engineers plan, design, and create the systems and apparatus by which electric power is produced, distributed, controlled, and used for light, heat, power, and communications in homes, business, industry, and transportation. The whole branch of communications, including telephone, telegraph, radio, radar, and television, is an important part of electrical engineering. More electrical engineers are employed in manufacturing than in any other field in the United States; in San Francisco the majority of electrical engineers are employed in Transportation, Communication, and Utilities.

A high school diploma and a college degree generally are required before one may enter the profession. In California, there is a movement supported by engineers to require electrical engineers to possess a state license before they may employ the title "Registered Electrical Engineer."

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	.54
Construction	4.18
Manufacturing	13.63
Transportation, Communication, and Utilities	65.32
Wholesale and Retail Trade	2.56
Finance, Insurance, and Real Estate	.68
Business and Repair Services	1.75
Personal Services	.27
Professional and Related Services	7.29
Government Services (n.e.c.)	3.78
	100.00

Electrical engineers in government employ earned about five hundred dollars monthly in 1947; those in private practice sometimes earn several times this amount. Manufacturing firms and utility companies offer good jobs for young engineers.

The economic outlook for the next five years is very good; after that, there may be a slight decrease in available openings.

For further information see:

The Engineering Profession in Transition by Andrew J. Fraser. Engineers Joint Council, 33 West 39th St., New York, 1947.

An Outline of Careers by Edward L. Bernays. Doubleday, Doran, New York, 1934.

MECHANICAL ENGINEERS 0-19.

United States employment in 1940—85,543
San Francisco employment in 1947— 887

The mechanical engineer is concerned with designing and creating machinery, developing manufacturing or production methods, and utilizing power. Mechanical engineers design refrigeration, heating, and air-conditioning equipment, machine tools, and machines used in making other machines. Almost every mechanical device that moves is in the field of the mechanical engineer. Some of the branches of this work are air conditioning, automotive and combustion engine work, factory layout, gas distribution, and marine engineering.

The mechanical engineer, probably more than any other engineer, is dependent upon the state of business activity in manufacturing. If business is good, there always is work for the mechanical engineer, whether in designing a delicate watch or in constructing a giant steam locomotive.

Industrial Distribution of These Workers

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	.79
Construction	7.13
Manufacturing	41.52
Transportation, Communication, and Utilities	13.91
Wholesale and Retail Trade	12.44
Finance, Insurance, and Real Estate	1.25
Business and Repair Services	2.26
Personal Services	.23
Professional and Related Services	13.91
Government Services (n.e.c.)	6.56
	100.00

Preparation for this profession consists of high school graduation and at least a four-year degree from an engineering college; a fifth year in graduate study is recommended by authorities in the field. Mechanical engineers enter the field by what might almost be called an apprentice system. The beginning jobs are in the drafting room, testing laboratory, the layout department, or the production department of a large factory or design business. In recent times the eastern and Atlantic states have had more employment opportunities for mechanical engineers than has California; but with an increase in manufacturing and processing activities in the West, there should be an increase in the employment of mechanical engineers here. The economic outlook is good for the next few years until the gap in the profession caused by the war years has been filled; after this period, however, students interested in this occupation should examine the field carefully for overcrowding. For further information see:

The Engineering Profession in Transition by Andrew Fraser. Engineers Joint Council, 33 West 39th St., New York, 1947.

The Engineering Profession, Stanford University. Stanford Press, Stanford, California, 1941.

How to Be an Engineer by Fred D. McHugh. Robert M. McBride Co., New York, 1941.

OTHER TECHNICAL ENGINEERS

United States employment in 1940—29,640
San Francisco employment in 1947— 697

"Other Technical Engineers" is a term used by the census to include those men who have had basic professional training and degrees, but who, by reason of special training and experience, should no longer be classified under the three traditional headings. Among these specialties are forest engineer, naval architect, ceramic engineer, petroleum engineer, radio or electronics engineer, time-study engineer, aeronautical engineer, safety engineer, chemical engineer, mining engineer, etc.

In general, it may be assumed that most special engineers of professional standing are graduate engineers of one of the regular branches who have, by reason of special study, research, and experience, become so highly specialized in training and service that they no longer should be placed in the original category.

Industrial Distribution of These Workers

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	12.77
Construction	2.44
Manufacturing	38.31
Transportation, Communication, and Utilities	5.02
Wholesale and Retail Trade	5.02
Finance, Insurance, and Real Estate	6.17
Business and Repair Services	3.44
Personal Services	—
Professional and Related Services	22.67
Government Services (n.e.c.)	4.16
	100.00

In many cases these men maintain a consulting office and staff and derive incomes far in excess of the usual engineer's salary.

Inspection of Chart II in the "Other Technical Engineers" square in *each* industry classification will provide clues as to the specialties that exist. For information in regard to institutions offering special courses in engineering specialties, consult *A Guide to Colleges, Universities and Professional Schools in the United States* by Carter V. Good. Published by the American Council on Education, Washington, D.C., 1945.

LAWYERS AND JUDGES 0-22.

United States employment in 1940—180,483
San Francisco employment in 1947— 2,777

Substantial gains in the number of lawyers in the country have been made since the 1930 census. The gain for the last decade was about eleven per cent, with both sexes sharing in the gain. It is estimated that about two per cent of the lawyers in the country are women.

Law practice can be divided into three large fields, criminal law, personal and property damage, and the field of commercial and corporation law. Corporation law has increased in importance as government regulation of business has increased. About two-thirds of the lawyers in this country are estimated to be independent or self-employed; others work for corporations, for governmental agencies, or for other lawyers.

Lawyers in most states must have two years of prelegal college work before admission to a law school. After graduation from the law school, graduates must pass a state bar examination before they can appear before the courts. A common method of entry is through a junior partnership in an established law office.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	.11
Construction	—
Manufacturing	.72
Transportation, Communication, and Utilities	1.26
Wholesale and Retail Trade	.76
Finance, Insurance, and Real Estate	4.36
Business and Repair Services	.36
Personal Services	—
Professional and Related Services	78.34
Government Services (n.e.c.)	14.09
	100.00

Earnings generally are good after the initial start has been made. In 1947, San Francisco and the State of California were paying from $268 to $900 a month for lawyers. The average net income for lawyers was $4,800 in 1941, according to one estimate.

The long term outlook is for the profession to continue its expansion. The profession has been overcrowded in the past, however, and too many lawyers probably will continue attempting to earn a living in the field.

For further information see:

Occupational Outlook Information, Veterans Administration Manual M7-1 and supplements, Government Printing Office, Washington, D.C., 1946.

Vocations For Boys by H. D. Kitson and M. R. Lingenfelter. Harcourt, Brace, New York, 1942.

The Study of Law and Proper Preparation by Edward T. Lee. The Author, Chicago, Ill., 1939.

LIBRARIANS 0-23.

United States employment in 1940—38,607
San Francisco employment in 1947— 212

The selection, repair, cataloging, and circulation of books is the work of librarians who work in private, governmental, reference, special, public, and school libraries. In the small libraries of the country, the professional librarian often is required to do a little bit of everything: selecting and ordering books, cataloging and classifying, managing circulation, doing reference work, reviewing books, and editing publicity for the library. Workers in larger libraries often are able to specialize in fields of particular interest to them.

The number of librarians increased by 30 per cent in the last census decade and has shown a steady increase for the past fifty years. About ten per cent of librarians are men. Professional training consists of at least one year of graduate study, with two years required in the best schools for the master's degree. In school systems, the teacher-librarian must have both the library credential and a teaching credential. Salaries of librarians have been low but now are increasing. School librarians in California earn a minimum of $2,400; the average wage for librarians in the San Francisco Public Library in 1947 was about $2,800. The employment outlook is good. Before the war, placement of library school graduates reached 100 per cent.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	1.41
Transportation, Communication, and Utilities	.47
Wholesale and Retail Trade	1.89
Finance, Insurance, and Real Estate	1.89
Business and Repair Services	—
Personal Services	—
Professional and Related Services	89.15
Government Services (n.e.c.)	5.19
	100.00

For more information see:

The Library as a Vocation by Hariett Sawyer. H. W. Wilson Co., New York, 1933.

Public Libraries in the Life of the Nation by B. S. Rossell. American Library Association, Chicago, 1943.

Our Library by Phyllis R. Fenner. John Day Co., New York, 1942.

Books on Wheels by Mary R. Lingenfelter. Funk and Wagnalls, New York, 1938.

Journal of the American Library Association—see current issues.

MUSICIANS AND MUSIC TEACHERS 0-24.

United States employment in 1940—129,680
San Francisco employment in 1947— 1,453

Of the 129,680 Musicians and Music Teachers in the country reported in the 1940 census, 46 per cent were women. The total number employed in the profession declined about three per cent between 1930 and 1940. Some authorities attribute this to the depression of the thirties and to mechanical reproduction of music.

Musicians find opportunities in composing and arranging, conducting, performing, and in teaching. About 30,000 out of the total are estimated to be teachers of music. The preparation of those in this group depends on certain basic talents and abilities, plus a musical education. The Music Education Research Council describes "talent" as a composite of sensory equipment, motor response, emotional depth, musicality or intuitive understanding of musical materials, interest and will power, and general intelligence. Graduation from a four-year musical course of college level is recommended.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	—
Transportation, Communication, and Utilities	5.85
Wholesale and Retail Trades	7.16
Finance, Insurance, and Real Estate	—
Business and Repair Services	.14
Personal Services	1.03
Professional and Related Services	85.41
Government Services (n.e.c.)	.41
	100.00

Individual artists performing serious music have the most difficult time making a living. Many more are successful as ensemble performers or as teachers. Incomes vary widely, but a weekly salary of $75 is average for ensemble performers. Teachers earn from one to ten thousand dollars a year depending upon their reputation and the time they have. Many musicians combine performing and teaching.

The future may see the decrease in musicians continuing, although some experts feel that television will make for the employment of more persons in this field.

For further information see:

What's Music? by John Erskine. J. B. Lippincott Co., Philadelphia, 1944.

Music as a Profession by Howard Towleman. Charles Scribner's Sons, New York, 1939.

Yearbooks of the Music Educators National Conference.

Etude—see current isues.

OSTEOPATHS 0-39.96.

United States employment in 1940—6,067
San Francisco employment in 1947— 51

Osteopathic physicians have increased in number since 1890, when the first state law regulating their practice was passed, to 1930. Between 1930 and 1940 there was a slight decrease, caused mainly by a decrease among the women in the profession. Osteopathy is the science of prevention, diagnosis, and treatment of disease and injury, chiefly concerned with manipulation of bones, muscles, and nerves, but including surgery and other branches of medicine as well.

The applicant for a license as an osteopathic physician must have completed high school, two years of college preosteopathic education, and graduation from a recognized four-year college of osteopathy, of which there are six in the United States. He must then pass a rigid state examination. Incomes of osteopathic physicians have risen steadily, and in 1941 the New York State Osteopathic Society reported average gross incomes of $7,208 annually. Men and women have excellent opportunities in this field, and it is suggested by the United States Office of Education, Occupational Information and Guidance Service, that there will be an increasing need for the services of people in this profession, especially in smaller towns.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	—
Transportation, Communication, and Utilities	—
Wholesale and Retail Trades	—
Finance, Insurance, and Real Estate	—
Business and Repair Services	—
Personal Services	—
Professional and Related Services	100.00
Government Services (n.e.c.)	—
	100.00

For further information see:

Vocations For Boys by H. D. Kitson and M. R. Lingenfelter. Harcourt, Brace, New York, 1942.

For specific information write to (1) Director of Statistics and Information, American Osteopathic Association, 540 North Michigan Avenue, Chicago, (2) College of Osteopathic Physicians and Surgeons, Los Angeles, California.

PHARMACISTS 0-25.10.

United States employment in 1940—81,924
San Francisco employment in 1947— 810

The modern pharmacist, like the chemist of early days, compounds, mixes, and prepares drugs in forms suitable for human use to prevent or cure illness and to promote good health. But the present-day pharmacist also is a business man. Eighty-five per cent of the graduating pharmacists of the nation go to work in pharmacies and drug stores, where they not only prepare, compound, and distribute drugs, but also sell tobacco and candy, operate soda fountains, and sell the multitude of unrelated articles now stocked by the average drug store. State laws require that a pharmacy or drug store be in charge of a licensed pharmacist at all times when it is open for service.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	.13
Transportation, Communication, and Utilities	.12
Wholesale and Retail Trades	97.53
Finance, Insurance, and Real Estate	—
Business and Repair Services	—
Personal Services	—
Professional and Related Services	1.48
Government Services (n.e.c.)	.74
	100.00

In 46 states, graduation from a college of pharmacy is required, and in all states a license based upon examination plus a minimum of one year of supervised experience is mandatory. Nearly half of all pharmacists in the nation in 1940 owned their own stores. There are also openings in pharmaceutical research, the wholesale drug field, hospitals, government, pharmaceutical education, and publication of trade journals.

In 1942, self-employed pharmacists in the nation netted an average of $4,300. Wages for salaried pharmacists vary widely; in San Francisco in 1948, the monthly wage was $375. The outlook for pharmacists is excellent for at least ten years.

For further information see:

Medical Occupations by Lee M. Klinefelter. E. P. Dutton, New York, 1938.

History of Pharmacy by Kramers and Urdang. J. B. Lippincott and Co., Philadelphia, 1940.

Your Future in Pharmacy, National Pharmacy Committee on Public Information, 620 - 5th Avenue, New York 20, N.Y., 1944.

Occupational Outlook Information, Veterans Administration Manual—M7-1 and supplements, Government Printing Office, Washington, D.C., 1946.

PHYSICIANS AND SURGEONS 0-26.

United States employment in 1940—165,629

San Francisco employment in 1947— 2,299

The general practitioner is the type of doctor most familiar to us. Many young doctors start out as general practitioners, although they may at once, or later, concentrate on one of the 13 specialties recognized for certification. These specialties are:

1. Internal medicine
2. Surgery
3. Pediatrics
4. Dermatology and syphilology
5. Radiology
6. Pathology
7. Otolaryngology
8. Neurology and psychiatry
9. Urology
10. Ophthalmology
11. Orthopedic surgery
12. Anesthesiology
13. Obstetrics and gynecology

To obtain a license to practice medicine, a doctor must pass a state examination after he has secured the medical diploma. The premedical college work, the medical school, and the required interneship amount, in many cases, to eight years of study before the high school graduate is able to practice as a fully qualified physician or surgeon.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	.09
Construction	—
Manufacturing	—
Transportation, Communication, and Utilities	.17
Wholesale and Retail Trades	.13
Finance, Insurance, and Real Estate	.35
Business and Repair Services	—
Personal Services	.04
Professional and Related Services	96.30
Government Services (n.e.c.)	2.92
	100.00

Women have been particularly successful in medicine, especially in pediatrics and in public health work, but certain problems of admission to medical school and interneship still present difficulties for women. All medical students are faced with the fact that of the 12,000 or more applicants to medical schools each year, the existing colleges cannot accommodate more than 6,000.

Qualifications for medicine are strict. A person must be able to complete eight difficult, exacting years of study and then must have character, honesty, a deep sense of responsibility, and sympathy and understanding to be happy and successful in a medical career. Earnings are good, but a doctor begins to earn late, and his income usually begins to fall off after he reaches 50. Doctors in governmental work in 1947 earned from $5,000 to $10,000, and more in private practice. The economic outlook for doctors is good.

For further information see:

Do You Want to Become a Doctor? by Morris Fishbein. Frederick Stokes Co., New York, 1939.

Medical Occupations for Boys by Lee M. Klinefelter. E. P. Dutton, New York, 1938.

Medical Economics Journal—see current issues.

For recent information on requirements for students and ratings of schools, write to The Council on Medical Education and Hospitals of the American Medical Association, 523 North Dearborn, Chicago.

SOCIAL AND WELFARE WORKERS 0-27.

United States employment in 1940—75,197
San Francisco employment in 1947— 976

The social worker helps human beings as individuals or in groups. He attempts to help them to resolve the problems in their personal lives or the problems they face in community living. Social workers may work in family service, recreation, probation or parole, settlement houses, hospitals and clinics, medical or psychiatric services, social research, religious work, child welfare, or relief organizations. The three main divisions of social welfare work are (1) case work with individual clients, (2) social work with groups, and (3) social planning and fund raising.

A master's degree from an approved school of social work is recognized as the mark of a qualified social worker. Many scholarships are available for those who wish to prepare for this work. Graduate social workers begin at around $2,400 a year. In 1947, the City of San Francisco paid each of its 224 social workers about $3,600.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	—
Transportation, Communication, and Utilities	.10
Wholesale and Retail Trade	.10
Finance, Insurance, and Real Estate	.10
Business and Repair Services	—
Personal Services	.82
Professional and Related Services	23.36
Government Services (n.e.c.)	75.52
	100.00

More trained social workers are needed throughout the country right now. The need for social workers is expected to continue for some time.

For further information see:

Vocations for Girls by M. R. Lingenfelter and H. D. Kitson. Harcourt, Brace, New York, 1939.

Students and Occupations, E. G. Williamson. Henry Holt, New York, 1937.

American Charities and Social Work by Warner et al. 1930.

For specific information write to: American Association of Schools of Social Work, 1313 E. 60th St., Chicago 37, Ill.

TEACHERS 0-30. through 0-32.

United States employment in 1940—1,076,001
San Francisco employment in 1947— 6,649

Teachers form the largest group of professional workers in the country. The 1940 Census showed that the number of male teachers increased and the number of female teachers decreased from the number at the time of the 1930 Census, a trend which was linked with the severe depression of the thirties because of the down-grading influence at work in the economy. Men who normally would have taken jobs at higher salaries in other lines, after using teaching as a stepping-stone, hesitated to leave the profession and remained with teaching as their career. The war years instead wiped out the surplus of 80,000 unemployed teachers of 1935, and by 1943, there was an actual shortage of 13,000 teachers.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	—
Transportation, Communication, and Utilities	.12
Wholesale and Retail Trade	.51
Finance, Insurance, and Real Estate	.03
Business and Repair Services	.08
Personal Services	.86
Professional and Related Services	97.05
Government Services (n.e.c.)	1.35
	100.00

Teachers are described in the *Dictionary of Occupational Titles* according to the levels in which they work, such as nursery school, kindergarten and primary, junior and senior high school, adult school, and college teachers. They may be cataloged also according to their specialties, such as art, physical education, English, history, industrial arts, science, etc. Educational requirements are strict. In California five years of college work are almost a necessity for the young teacher who wishes a good position. Some states have minimum salary laws and tenure provisions as a protection for teachers.

The economic outlook is good for the well-educated and gifted teacher. Probably no community today is providing full educational advantages for all its children, and if society goes on to offer these services, the true need for teachers will remain great. Funds for education are closely related to general economic conditions, however, and depressions frequently bring cuts in the educational program.

For further information see:

So You're Going to Teach by Eva Knox Evans. Julius Rosenwald Fund, Chicago, 1943.

Biennial Surveys of Education, U. S. Office of Education, Washington, D.C., Government Printing Office.

Vocations by William M. Proctor. Houghton, Mifflin Co., New York, 1937.

NURSES 0-33.

United States employment in 1940—371,066
San Francisco employment in 1947— 4,892

The registered nurse is one who has graduated from an accredited school or college of nursing after a minimum of 36 months of training above the high school level. Applicants to a nursing school should have graduated from an accredited high school in the upper third of their class and usually are required to have completed a year of chemistry.

Nurses provide the usual care for patients and assistance to doctors and may, after special training or experience, become surgical, industrial, public health, psychiatric, or military nurses. Pay for nurses varies widely with the type of duty and place of employment, and information on salaries is further obscured by the fact that board and room may or may not be provided.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	.06
Transportation, Communication, and Utilities	1.00
Wholesale and Retail Trade	.20
Finance, Insurance, and Real Estate	.47
Business and Repair Services	.02
Personal Services	2.15
Professional and Related Services	92.09
Government Services (n.e.c.)	4.01
	100.00

Ninety-eight per cent of all nurses are women, but in the last census decade the number of men in the field increased from 5,452 in 1930 to 8,072 in 1940, an increase of 48 per cent. The total number of nurses in the same decade increased 26 per cent. Nurses are in great demand at present, and the long term occupational outlook for them is very good.

For further information see:

Your Career in Nursing by Cecelia L. Schulz. McGraw-Hill, New York, 1941.

Do You Want to Be a Nurse? by Dorothy Sutherland. Doubleday-Doran, New York, 1942.

The Public Health Nurse In Action by Marguerite Wales. The Macmillan Co., New York, 1941.

VETERINARIANS 0-34.

United States employment in 1940—10,957
San Francisco employment in 1947— 35

The doctor of veterinary medicine studies and treats diseases of animals, advises on their care and breeding, and inspects animal products intended for human consumption or use. Veterinarians in cities usually concentrate on the care of pets, and those in rural areas specialize in the care and breeding of farm animals.

About sixty per cent of all veterinarians in the United States are in private practice. Most of the others are employed by the federal, state, or local governments. In 1935, veterinarians in private practice had an average annual income of $6,890 and all others averaged $3,489. The practice of veterinary medicine is controlled by license in every state. After two years of preveterinary college training the student attends a college of veterinary medicine and is graduated with the degree of D.V.M. California's first college of veterinary medicine will be opened by the University of California at Davis in 1948.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	—
Transportation, Communication, and Utilities	—
Wholesale and Retail Trade	—
Finance, Insurance, and Real Estate	—
Business and Repair Services	—
Personal Services	—
Professional and Related Services	80.00
Government Services (n.e.c.)	20.00
	100.00

The high average age of practicing veterinarians and the small numbers of those in training, combined with the increased need for veterinarians as animal husbandry becomes more highly specialized and scientific, makes the outlook for employment in this field good for several years.

For further information see:

Occupational Outlook Information, Occupation Index. Veterans Administration Manual M7-1 and supplements, Government Printing Office, Washington, D.C., 1946.

Journal of the American Veterinary Medical Association—see current issues.

OTHER PROFESSIONAL WORKERS

United States employment in 1940—90,492
San Francisco employment in 1947— 1,489

The census does not report separately on those professions followed by relatively few persons. These are classified into a "catch-all" group, which has great significance despite its miscellaneous character. Listed as Professional Workers (not elsewhere classified) are 112 occupational titles. In most cases these professional workers are specialized well-educated people performing highly specialized services in our society.

For the reader of this study, perhaps the best clue to the professions included is provided by a study of the occupation as shown in *each* industry-group on Chart III. For example, in Agriculture, Forestry, and Fishing, 22 is the number for Other Professional Workers (n.e.c.). Since they are not listed above, they must fall among the following classifications:

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	1.48
Mining	.20
Construction	1.35
Manufacturing	8.35
Transportation, Communication, and Utilities	6.33
Wholesale and Retail Trades	8.42
Finance, Insurance, and Real Estate	7.07
Business and Repair Services	8.15
Personal Services	.87
Professional and Related Services	33.74
Government Services (n.e.c.)	24.04
	100.00

agronomist
aboriculturist
bacteriologist
biologist
botanist
cytologist
ecologist
entomologist
forest ranger
erosion expert
ichthyologist

In Mining, the three workers represented might be:

minerologist geologist physicist

In Construction there are 20 persons listed in the group category. These are generally found among:

acoustician
employment manager
hydrographer
physicist
research worker
traffic engineer

The Manufacturing Industries show 124 such workers in San Francisco. Prominent among them would be:

adviser for vocational training
bacteriologist
biological inspector
biologist
catalog compiler
dietitian
director of research
ecologist
economic researcher
employment manager
personnel supervisor
textile expert

The Communications, Transportation, and Utilities group has 94 persons listed in the "Other" group. These would be from among:

dietitian
economic analyst
employment manager
erosion specialist
etymologist
meteorologist
physicist
traffic engineer

The Wholesale and Retail Trade group has 125 professional workers in this category. They will be found mainly among:

biological inspector
economist
educational director
manager research bureau
personnel manager
statistician

The Finance, Insurance, and Real Estate groups have 105 unspecified professional workers. Among them are the:

actuary
accountant
dietitian
educational worker
economic analyst and researcher
employment supervisor
mathematician
personnel worker
research worker
statistician

The Business and Repair Services show 121 unclassified professional workers such as:

catalog compiler
director of research
economic analyst
educational director
lecturer
personnel manager
statistician
vocational adviser

In the Personal Service industries, there are 13 professional workers not elsewhere classified. Among the titles they might bear would be:

dietitian
employment supervisor
nutritionist
personnel worker
research worker

The Professional and Related Services have 501 unspecified professional workers. Since it is in this industrial heading that professional consultants are listed, almost any of the 112 titles of the census group may appear here. Among them one might find:

actuary
agronomist
bacteriologist
botanist
biologist
curator
cytologist
director of museum
economist
educational director
etymologist
forester
geophysicist
herpetologist
hydrographer
ichthyologist
immunologist
inventor
lecturer
parasitologist
personnel adviser
physicist
physiologist
psychologist
researcher
statistician
traffic engineer

Government Services (n.e.c.) shows 357 unspecified professional workers. They may be found among the following:

adviser in education
agronomist
aboriculturist
bacteriologist
biological inspector
botanist
cytologist
dietitian
director of research
economic analyst
economist
employment interviewer
employment specialist
entomologist
erosion specialist
forest ranger
geologist
horticulturist
hydrographer
ichthyologist
mediator
meteorologist
personnel worker
psychoanalyst
psychologist
researcher
sociologist
traffic engineer
vocational adviser

DANCERS, SHOWMEN, AND ATHLETES 0-45., 0-57., and 0-62.

United States employment in 1940—54,254
San Francisco employment in 1947— 413

The number in this group in the United States made a slight gain between 1930 and 1940, and about three-fourths of the group are men, although this percentage varies with the specific occupation being considered. Among those included here are acrobatic, tap, ballet, chorus, and precision dancers and dancing teachers. The showmen include clowns, hypnotists, magicians, jugglers, ventriloquists, acrobats, stunt men, circus riders. The athletes may be divided into two groups, those who engage in professional team play such as baseball, football, and hockey, and those who work as individual performers in such activities as tennis and golf.

Requirements for entry into this field are varied and depend primarily on the natural talent and ability of the performer. Income is generally low, despite the publicity given to the salaries of some star performers.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	—
Transportation, Communication, and Utilities	1.70
Wholesale and Retail Trade	.48
Finance, Insurance, and Real Estate	—
Business and Repair Services	—
Personal Services	1.45
Professional and Related Services	95.16
Government Services (n.e.c.)	1.21
	100.00

For further information see:

Vocations for Boys by H. D. Kitson and M. R. Lingenfelter. Harcourt, Brace, New York, 1942.

DESIGNERS 0-46.

United States employment in 1940—23,614
San Francisco employment in 1947— 472

The number of designers has increased steadily over the country; there was a 14 per cent increase from 1930 to 1940. Women account for about one-third of employment in this field. The work of designers is closely akin to that of draftsmen but is usually regarded as being on a somewhat higher professional level and as involving more creative activity. The *Dictionary of Occupational Titles* lists such specialties as garment and apparel accessory designers, furniture designers, pottery and tile designers, scenery designers, jewelry designers, and toy designers. Many designers work with industrial or mechanical engineers to improve the beauty and usefulness of the articles to be produced. Designers may create original patterns, models, or drawings independently or may be required to work closely under the supervision of engineers, stylists, or artists.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	46.82
Transportation, Communication, and Utilities	.21
Wholesale and Retail Trade	17.80
Finance, Insurance, and Real Estate	—
Business and Repair Services	21.40
Personal Services	—
Professional and Related Services	13.35
Government Services (n.e.c.)	.42
	100.00

Education for design work should rest on a sound, general education with an emphasis upon commercial art and drawing. Special schools provide post-high-school training for the young designer. Authorities tend to emphasize the importance of practical experience in the workshop, laboratory, or studio. Salaries are low for the beginner, but later on incomes of three to ten thousand dollars a year are common for the successful designer. The employment outlook for the future is good for the well-trained individual.

For further information see:

Careers in Commercial Art by J. I. Biegeleisen. E. P. Dutton and Co., New York, 1944.

Vocations for Girls by M. R. Lingenfelter and H. D. Kitson, Harcourt, Brace, New York, 1939.

Vocations for Boys by H. D. Kitson and M. R. Lingenfelter. Harcourt, Brace, New York, 1942.

Be An Artist by Marion Downer. Lathrop, Lee, and Shepard, Boston, 1941.

DRAFTSMEN 0-48.

United States employment in 1940—88,191
San Francisco employment in 1947— 1,080

Draftsmen are the workers who serve and contribute to the work of the engineers. In depression times, many draftsmen were replaced by engineers as engineering work became scarce.

The draftsman is the one who makes detailed drawings and plans and puts the specifications on paper for the engineer, inventor, or architect. Draftsmen often specialize and are called architectural draftsmen, cartographers, marine draftsmen, aeronautical draftsmen, etc. It is often difficult, at the higher levels, to distinguish the designer from the draftsman, and either one from the engineer.

There are two avenues to the job, one through apprenticeship with an engineer or firm, the other through vocational schools or technical colleges. The draftsman often is forced to compete with the young engineer just out of college who is using drafting as an entry to engineering.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	.09
Mining	.65
Construction	9.57
Manufacturing	35.93
Transportation, Communication, and Utilities	10.77
Wholesale and Retail Trade	4.64
Finance, Insurance, and Real Estate	1.30
Business and Repair Services	10.12
Personal Services	.09
Professional and Related Services	15.23
Government Services (n.e.c.)	11.61
	100.00

Many draftsmen work up on the job to become full-fledged engineers. In 1947 draftsmen were receiving from $250 to $350 monthly in civil service jobs. The economic outlook for completely trained, experienced draftsmen is good, but workers with incomplete war training or beginners may have to meet stiff competition from better trained and experienced persons. Architectural and structural draftsmen are in greatest demand at present.

For further information see:

Government Jobs and How to Get Them by S. D. Spero. J. B. Lippincott, Philadelphia, 1945.

Handbook of Careers by Herbert Burstein. Thesis Publishing, 1941.

Mechanical Drafting and Design by Chloris Shade. Morgan-Dillon Co., Chicago, 1940.

SURVEYORS 0-64.

United States employment in 1940—16,444
San Francisco employment in 1947— 211

A surveyor is responsible for the accuracy of the work of an engineering survey party engaged in determining the exact location and measurements of points, elevations, lines, areas, and contours for purposes of securing data for construction, map making, land valuation, mining, or other purposes.

Educational requirements for surveyors are best compared to those for civil engineers. General employment trends are to eliminate the title "Surveyor" and employ, instead, the completely trained engineer, who then acts as chief of party when surveying is to be done. Furthermore, in times of receding activity in construction, the surveyor with limited training may be pushed out from above as the downgrading process forces the civil engineer into competition with the surveyor for the limited job openings available.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	.47
Mining	3.32
Construction	29.86
Manufacturing	3.32
Transportation, Communication, and Utilities	9.00
Wholesale and Retail Trade	—
Finance, Insurance, and Real Estate	1.90
Business and Repair Services	1.42
Personal Services	—
Professional and Related Services	16.59
Government Services (n.e.c.)	34.12
	100.00

Opportunities for women are nonexistent in this field. The beginning surveyor may start as rod man or chain man and work up to chief of party. For this position civil service paid from $300 to $400 monthly in 1947. The immediate outlook is bright for employment in this field, but in a very few years stiff competition is expected for such positions.

For further information see:

The Engineering Profession in Transition by Andrew Fraser. Engineers Joint Council, 33 West 39th St., New York, N. Y., 1947.

The Engineer by John Hays Hammond. Charles Scribner's Sons, New York, 1924.

Engineering Opportunities by R. W. Clyne. D. Appleton-Century, New York, 1939.

OTHER SEMIPROFESSIONAL WORKERS

United States employment in 1940—318,940
San Francisco employment in 1947— 4,929

In each of the eight major occupational categories the census finds it impossible to provide separate listings of those occupations followed by relatively few persons. In this case, "Other Semiprofessional Workers" is a title used to designate a large and significant group of workers in San Francisco. The reader interested in semiprofessional occupations should not overlook the interesting vocational possibilities concealed by this somewhat ambiguous title.

Perhaps the best way of discovering the job titles concealed in this grouping is through an examination of the specific industry groups under which the various numbers of Other Semiprofessional Workers are listed.

In the industry heading, Agriculture, Forestry, and Fishing, 21 workers are listed. Among these one would expect to find such occupations as:

- apiculturist
- cruiser, land or timber
- dairy husbandman
- dispatcher, Forest Service
- examination grader or scorer
- fire warden, Forest Service
- fish culturist
- fish and game warden
- job interviewer
- poultry husbandman
- tree surgeon

Industrial Distribution of These Workers

	PER CENT
Agriculture, Forestry, and Fishing	.43
Mining	.04
Construction	2.62
Manufacturing	7.37
Transportation, Communication, and Utilities	20.59
Wholesale and Retail Trade	9.18
Finance, Insurance, and Real Estate	.45
Business and Repair Services	4.04
Personal Services	15.92
Professional and Related Services	33.72
Government Services (n.e.c.)	5.64
	100.00

Mining furnishes only two workers for this general group, a figure which is too small statistically to make conjecture worthwhile as to the possible occupations represented. In the country as a whole, a certain number of laboratory technicians is employed in a semiprofessional capacity in this industry, and it is possible that a very small but unknown number may be so employed in this city.

The Construction industry has 129 semiprofessional workers listed for San Francisco. These may be:

- apprentice architect
- apprentice designer
- apprentice draftsman
- estimator
- specification writer

The group of Manufacturing industries shows 363 semiprofessional workers (not elsewhere classified). In attempting to describe these workers, one would assume that they might be found among the following:

- apprentice designer
- apprentice draftsman
- coffee taster
- copyright expert
- employment interviewer
- estimator
- job analyst
- specification writer
- stylist

The Transportation, Communication, and Utilities group shows 1,014 unspecified semiprofessional workers. We would expect to find represented here:

apprentice draftsman
apprentice surveyor
entertainer
musical program builder
radio announcer
research worker
specification writer

In Wholesale and Retail Trade there are 452 unspecified semiprofessional workers who might be:

apprentice designer
coffee taster
cloth tester
dairy products tester
inspector
photographer
poultry tester
stamp dealer
stylist
tea taster

In the Finance, Insurance, and Real Estate group there are 22 semiprofessional workers. Among these workers one might expect to find: appraiser, estimator, research worker.

In Business and Repair Services there are 199 unspecified semiprofessional workers, among which one might find the:

apprentice commercial artist
commercial designer
commercial draftsman
dental ceramist
dental laboratory technician
detailer
job analyst
layout man
photo finishing technician
radio announcer
radio program builder
sign designer
street photographer
tracer

The Personal Services group has 284 unspecified semiprofessional workers. Here one finds the:

embalmer
electrotherapist
hydrotherapist
masseur
masseuse
mortician
photographer

The Professional and Related Services group has 1,661 unspecified semiprofessional workers. Among them are the:

Bible school teacher
cartographer
chemist's assistant
commercial draftsman
dental hygienist
dental technician
evangelist
laboratory assistant
laboratory technician
law clerk
lay brother
missionary worker
motion picture theater technician
practitioner
religious society secretary
religious teacher
religious visitor
sound-effects man

Under the Government Services (n.e.c.) heading we have 278 unspecified semiprofessional workers. These might be:

- appraiser
- censor
- employment interviewer
- estimator
- fingerprint expert
- fire warden
- radio operator
- telegrapher
- translator
- weather bureau observer
- x-ray technician

PROPRIETORS, MANAGERS, AND OFFICIALS

0-70. through 0-99.

United States employment in 1940—3,753,860

San Francisco employment in 1947— 55,141

In the national census, this classification is small, representing only 7.8 per cent of the total labor force. Yet in spite of its small size, this number represents the personnel primarily responsible for the management, supervision, and policies of business and government and therefore is correspondingly important. Women form about eleven per cent of the total. In San Francisco this entire occupational category represents 11.79 per cent of the total working force in 1947.

Industrial Distribution of These Workers

	PER CENT
Agriculture, Forestry, and Fishing	.54
Mining	.16
Construction	2.92
Manufacturing	9.47
Transportation, Communication, and Utilities	9.34
Wholesale and Retail Trade	48.55
Finance, Insurance, and Real Estate	12.59
Business and Repair Services	4.14
Personal Services	3.45
Professional and Related Services	3.77
Government Services (n.e.c.)	5.07
	100.00

The personnel included in this heading are defined in this way in the census:

(1) a proprietor is one who owns, or who owns and, alone or with assistants operates his own business and is responsible for making and carrying out its policies; (2) a manager is one who manages all or a part of the business of another person or agency; who has large responsibilities in the making and in the carrying out of the policies of the business; and who, through assistants, is responsible for planning and supervising the work of others; (3) an official of a company, a corporation, or an agency, is an officer whose work involves large responsibilities in the making and carrying out of the policies of the concern or agency and in planning and supervising the work of the concern or agency or that of one or more of its departments.

In Agriculture, Forestry, and Fishing San Francisco has 299 persons in this category. These are from among:

agriculturist
breeder
contractor
dairy farmer
fruit rancher
market gardener
nursery owner
fisherman

The Mining group with 87 listed includes:

contractor for sand or gravel
contractor for drilling
developer
dredge master
leaser
manager of mine or quarry
official of a mining company

In the Construction industry we have 1,608 officials, among them:

builder of any structure
contractor for building, excavating, or finishing
sub-contractor for heating, painting, cement work
manager
partner
president
superintendent of construction or allied activities

The Manufacturing industry has 5,219 persons in this category. We find here:

- assistant manager of a factory
- clothing contractor
- contractor for factory materials
- crew manager, any factory
- department head, any factory
- manager, any factory
- official, any factory
- proprietor, any factory
- sales manager
- superintendent

In Communication, Transportation, and Utilities we have 5,145 officials, among them:

- agent, general freight
- agent, general passenger
- agent, traveling
- airport traffic manager
- cab owner
- depot master
- dispatcher
- division or district manager, telephone or power company
- express agent
- freight broker
- general agent
- hauling contractor
- highway transport proprietor
- radio broadcasting sales executive
- railroad conductor
- substation superintendent, power station
- treasurer, power, water, or gas company
- warehouse keeper

The Wholesale and Retail Trade industries have 26,756 persons in the managerial and proprietor classification. Suggestions as to their titles include:

- agent or broker, export or import
- agent, commission or commercial
- automobile sales proprietor or department head
- buyer in wholesale or retail trade
- clothier or clothing accessories merchant or dealer
- dealer, distributor, or jobber
- decorator, own store
- manager, sales agency
- merchant, dealer, or executive, any store
- own-account worker such as butcher, baker, confectioner
- salesman, own business

In the Finance, Insurance, and Real Estate group there are 6,937 such workers. They may be:

- agent, broker, and dealer in stocks and bonds
- bank official and officer
- cashier and treasurer
- developer, real estate
- insurance broker
- investment counselor
- manager, abstract company
- secretary or treasurer, insurance company
- speculator and trader
- trustee, real estate or estate

The Business and Repair Services group has 2,283 managers, proprietors, and officials. Their titles may be:

- advertising agency official or account executive
- automobile storage or parking lot proprietor
- employment agency official
- manager, adjustment, claims, or campaigns bureau
- manager, automotive service company
- proprietor, multigraphing, printing, or sign agency
- manager or owner of repair shop

In the Personal Service group we find 1,903 unspecified officials. Among them might be:

- barber shop or beauty shop owner or manager
- club house manager
- employer, laundry or cleaning establishment
- hotel keeper and manager
- hotel landlady
- maitre d'hotel
- manager, inn or tourist camp
- proprietor, linen supply firm
- treasurer, hotel or resort
- manager or owner of shoe repair shop

The Professional and Related Service group has 2,075 persons in this category. These are some of the occupational titles suggested:

- dance hall, poolroom, or bowling alley keeper or owner
- lodge and fraternal organization official
- manager or owner, engineering company
- manager, firm exchange or booking office
- manager, owner, or treasurer, theatre or motion picture house
- opera house manager
- sales manager, executive secretary, or treasurer corporation
- superintendent, any charitable institution
- ticket broker
- trustee, estate

The Government Services (n.e.c.) heading has in it 2,792 persons not reported in the other industrial headings. These may be:

- agent, revenue
- assistant superintendent of mails
- census official
- chancellor or consul of any government
- city assessor, recorder, collector, auditor
- collector of customs, revenue or tax
- congressman or diplomat
- director of any United States, state, or local bureau
- mayor
- member of legislature or board of supervisors
- officer of board of education
- superintendent of United States, state, or local agency

CLERICAL, SALES, AND KINDRED WORKERS

1-00. through 1-99.

United States employment in 1940—7,552,080

San Francisco employment in 1947— 150,915

The Clerical, Sales, and Kindred Workers category constitutes the largest group of workers in San Francisco. The proportion of women to total employment in this category is very high; this proportion is exceeded only slightly by the proportion of women to be found in the Professional and Semi-professional Workers category.

The clerical force alone in San Francisco amounts to 94,993. As defined by the census, a clerical worker is one who under supervision, performs one or more office activities, usually routine, such as preparing, transcribing, filing written communications and records; editing and coding schedules; compiling statistical or other data; operating office machines; and, in general, assisting in the work of the office, or in the work of a superior, by making appointments, acting as information clerk, record clerk, telephone operator, or messenger.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	.04
Mining	.11
Construction	.64
Manufacturing	12.49
Transportation, Communication, and Utilities	13.71
Wholesale and Retail Trade	40.48
Finance, Insurance, and Real Estate	15.14
Business and Repair Services	3.12
Personal Services	1.64
Professional and Related Services	4.06
Government Services (n.e.c.)	8.57
	100.00

It is clear at a glance that although these occupations are related, there is a wide range in skill required, pay, and responsibilities for those grouped herein. Thus we find the certified public accountant and the bookkeeping machine operator at opposite ends of the bookkeeping hierarchy, both listed under the same occupational category. Because of almost insurmountable difficulties in enumeration and tabulation, the census has been forced to use a loose method of distinguishing among the various levels of clerical occupations.

BAGGAGEMEN, EXPRESS MESSENGERS, AND RAILWAY MAIL CLERKS 1-43. and 1-31.

United States employment in 1940—27,240

San Francisco employment in 1947— 434

Seventy-two per cent of this group is employed by the United States Government and twenty-eight per cent by private transportation firms. The 1940 Census reported that no women were employed in these occupations.

There are two groups of baggagemen, those who work on trains and those who work in railway stations. Those on the baggage car assume charge of the passenger baggage during the scheduled run of a railway train. They receive luggage at the door of a baggage car, inspect tags on articles, and unload baggage at each destination. The paper work involved consists chiefly of keeping an inventory of the baggage handled.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	—
Transportation, Communication, and Utilities	27.88
Wholesale and Retail Trade	—
Finance, Insurance, and Real Estate	—
Business and Repair Services	—
Personal Services	—
Professional and Related Services	—
Government Services (n.e.c.)	72.12
	100.00

The train baggageman is promoted to that position from brakeman on a seniority basis. The station baggageman works his way up from a clerical assignment such as office boy, card checker, utility clerk. Station baggagemen earn approximately $250 a month, while train baggagemen earn approximately $300. Promotional lines for station baggagemen are to ticket clerks, ticket agents, station masters; for train baggagemen, to conductors.

Express messengers sort express packages on a railroad car. They also have a certain amount of paper work to do with bills of lading and with the routing of freight. When the volume warrants it, a messenger is assigned helpers. There seems to be no immediate demand for helpers or messengers.

Messengers earn from $260 to $295 a month, and helpers start at about $253, salaries based on a 190-hour month. Possible lines of promotion are to route agent, traveling auditor, agent, to chief clerk.

Railway mail clerks, commonly called railway postal clerks, sort mail, packages, and newspapers on a railway mail car. The work is somewhat more arduous than that of a clerk in a post office in that railway postal clerks work under pressure to complete each sorting operation in conformity with the railroad schedule, and they must work while the car is in motion.

To obtain employment as a postal clerk, one must pass a civil service examination. The general section of this test includes questions on grammar, spelling, arithmetic, and word analysis. Two other sections test aptitude for sorting and routine. So far as we can determine, there does not seem to be an oversupply of postal clerks.

Postal clerks start as substitutes at $2,300 a year, and on a seniority basis they move into regular positions. The salary schedule calls for annual raises

of $100 to a maximum of $3,300. Over and above this schedule there are $100 longevity raises at three scheduled intervals.

The employee is expected to take periodic examinations. Each year he must pass a test on postal regulations. He also takes "case" examinations, in preparation for which the clerk must familiarize himself with the mail-distribution plan for a certain area.

For further information see:

Government Jobs by S. D. Spero. J. B. Lippincott Co., Philadelphia, 1945.

BOOKKEEPERS, ACCOUNTANTS, CASHIERS AND TICKET AGENTS 1-01., 0-01., and 1-44.

United States employment in 1940—900,380
San Francisco employment in 1947— 17,974

The greatest single concentration within this group is in Wholesale and Retail Trade. Although national figures for bookkeepers, accountants, and cashiers as a combined group indicate that the workers are equally divided between men and women, an analysis of the local employment situation reveals that more women than men are employed as bookkeepers and that most accountants are men.

Bookkeepers maintain complete records of business transactions and prepare reports at regular intervals to show profit and loss and other items of significance. While in a smaller office a bookkeeper may be responsible for the complete bookkeeping operation, in larger offices there frequently is a division of labor. One person may enter daily transactions in a journal; another may handle accounts receivable or accounts payable.

Industrial Distribution of These Workers

	PER CENT
Agriculture, Forestry, and Fishing	.09
Mining	.22
Construction	1.54
Manufacturing	13.51
Transportation, Communication, and Utilities	16.05
Wholesale and Retail Trade	36.21
Finance, Insurance, and Real Estate	14.18
Business and Repair Services	2.35
Personal Services	2.48
Professional and Related Services	8.10
Government Services (n.e.c.)	5.27
	100.00

Ordinarily, it is of assistance in securing employment to have had some training at a junior college or business college. It is important that bookkeepers be able to type. Since much of the work in large offices now is done by machines, bookkeepers should be able to operate bookkeeping machines. The bookkeeper should bear in mind the fact that with additional training he may become an accountant.

Salaries for assistant bookkeepers range from $175 to $225 per month. Bookkeepers who are in full charge of a firm's accounts might command $225 to $250 per month. There are a few bookkeepers who have additional responsibilities concerned with tax reports, profit and loss statements, and the preparation of balance sheets, who may earn $300.

Accountants devise or install accounting systems to meet the needs of particular concerns; they prepare financial statements, audit books, and do other accounting work.

There are numerous specialized types of accounting. For example, auditors, among their other duties, verify bookkeeping records; cost accountants devise systems for the determination of production costs by units or jobs; public accountants act as consultants for business firms by performing such services as devising accounting systems and verifying or auditing accounts.

Accountants without experience ordinarily might expect to receive from $200 to $225 a month. Experienced accountants, depending on the amount or extent of their experience, might receive from $300 to $400; those who are approaching the classification of senior accountant—from $400 to $500. Some senior accountants may earn more. It is interesting to notice that accountants sometimes may start at a lower rate of salary than that of a bookkeeper. The accountant, however, has the opportunity to advance to a higher salary level.

Although the census has classified accountants under Clerical, Sales, and Kindred Workers, accounting usually is considered a professional occupation. The entry occupation on a professional level is termed ordinarily "junior accountant;" advance is made through intermediate grades to senior accountant. A still higher professional level is that of certified public accountant (C.P.A.) which requires the applicant to pass an examination and present approximately three years of qualifying experience. (For detailed qualifications consult the California Accounting Act issued by the State Board of Accountancy, 25 Taylor Street, San Francisco.)

Adequate training for accountants is important. A four-year college course with specialization in accounting, or its equivalent, is necessary if one is to qualify as an accountant.

Cashiers may be grouped into two general categories. First, there is the cashier who takes in cash, makes change, and whose responsibility is ended after she has submitted a cash deposit for the business of the day. The second category is that of the cashier who keeps records of cash transactions, receipts, and disbursements. She also may compare the amount of money received with sales slips and cash receipts. Head cashiers may assume much more responsibility in that they may authorize various plant expenditures or purchases. The duties of cashiers in this category and bookkeepers overlap to such an extent that ordinarily it is necessary for this second type of cashier to be trained as a bookkeeper.

Ticket agents are hired principally by air, rail, and motor line companies. The air line ticket agent is an entry occupation. Applicants, among other requirements, must have completed two years of college. They start at a salary of approximately $180. There is some opportunity to advance to other positions such as outside sales, assistant traffic manager, or other work concerned with the traffic and sales divisions.

A ticket agent with a railroad firm would more commonly be called a ticket clerk. Normally entrance to this type of work is through promotion from some form of clerical work, although it may come also from without the organization if the worker has acquired comparable experience. The position which usually would immediately precede that of ticket clerk is titled reservation clerk. A reservation clerk gives ticket and rate information over the telephone. Reservation clerks' salaries range, for the most part, from $240 to $270 a month, and ticket clerks' from $270 to $285. Ticket clerks work behind the counter, dealing with the public, and they must know tariffs

and routings. A ticket clerk might be promoted to passenger agent, who solicits business and handles especially complicated routings of individual passengers or groups.

Those who deal with the public from behind the counter are termed ticket agents by the bus lines. Ticket agent is an entry occupation for some, and may be a promotion for those who have worked in the baggage room. Ticket agents start at approximately $190 a month. This occupational classification is not expanding.

For further information see:

Careers In Business For Women, Smedley and Robinson. E. P. Dutton, New York, 1945.

Everyday Occupations, Davey, Smith, and Meyers. D. C. Heath and Co., Boston, 1941.

Government Jobs, S. D. Spero. J. B. Lippincott Co., Philadelphia, 1945.

MAIL CARRIERS 1-28.

United States employment in 1940—119,700
San Francisco employment in 1947— 2,187

The majority of mail carriers deliver mail on foot. Each morning the carrier reports to a post office station to sort the mail for his route and to pick up registered mail. The carrier's load must be no heavier than fifty pounds maximum, although usually it is above forty. The remainder of his mail is trucked to storage boxes in his district. Some carriers are assigned on a seniority basis to the "mounted" delivery service, delivering parcel post or special delivery letters.

To become a carrier one must take a civil service examination. The general section of this test includes questions on grammar, spelling, arithmetic, and word analysis. Two other sections test aptitude for sorting and routing of mail.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	—
Transportation, Communication, and Utilities	—
Wholesale and Retail Trade	—
Finance, Insurance, and Real Estate	—
Business and Repair Services	—
Personal Services	—
Professional and Related Services	—
Government Services (n.e.c.)	100.00
	100.00

New employees are first hired as substitutes. Each city and town is allowed a quota of carriers and a proportionate number of substitutes. At present, substitutes may expect to work a forty-hour week; prior to the war a substitute ordinarily did not have full-time employment. By seniority, substitutes advance to regular carrier grade. The starting salary for both regulars and substitutes is $1.29 an hour. For regulars the yearly salary would be $2,550, with annual raises to $3,550. After this figure has been reached, there are longevity raises spaced at three, five, and seven-year

intervals until a maximum of $3,850 is reached. When a carrier or clerk has reached top grade ($3,550), he is eligible for a junior supervisor position when one becomes available.

For further information see:

Civil Service Careers For Boys by Carlisle and Erickson. E. P. Dutton, New York, 1941.

Government Jobs by S. D. Spero. J. B. Lippincott Co., Philadelphia, 1945.

SHIPPING AND RECEIVING CLERKS 1-34.

United States employment in 1940—200,180

San Francisco employment in 1947— 3,564

Shipping and receiving clerks direct and participate in the assembling and shipping of merchandise. A shipping clerk who takes the full responsibility for a shipping department needs to have considerable knowledge of shipping procedures, practices, and rates, as well as a knowledge of carloading methods. He must know how to make up bills of lading and maintain files of shipping records.

Contrary to the situation in most of the other occupations in the clerical group, physical strength usually is of prime importance, unless the merchandise to be handled is especially light. It is interesting to note that the census lists no female workers in the occupation.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	.03
Mining	—
Construction	.20
Manufacturing	40.01
Transportation, Communication, and Utilities	9.24
Wholesale and Retail Trade	47.93
Finance, Insurance, and Real Estate	.34
Business and Repair Services	.90
Personal Services	.48
Professional Services	.51
Government Services (n.e.c.)	.36
	100.00

This occupation ordinarily is an end in itself, although in some firms a shipping clerk may be hired with a view to promoting him should he show desirable qualities. By working in the shipping department the new employee may become familiar with the merchandise and with shipping methods. The information he acquires forms a background for sales work and for other divisions of the business. The greatest concentration of shipping clerks is in wholesale and retail trade. Entering salaries range between $150 and $200 monthly. Shipping clerks frequently may earn $285 and more a month.

For further information see:

Everyday Occupations by Davey, Smith, and Myers. D. C. Heath and Co., Boston, 1941.

500 Postwar Jobs For Men by Lura Robinson. Doubleday, Doran, New York, 1945.

STENOGRAPHERS, TYPISTS, AND SECRETARIES

1-37. and 1-33.

United States employment in 1940—1,069,940

San Francisco employment in 1947— 21,331

The constant demand for skilled office workers has kept pace with the growth of employed working force in San Francisco until we now find 21,331 workers in this classification, a marked increase over the 1940 figure. Employment in this category is spread throughout all types of business and industry. The largest concentration is in Finance, Insurance, and Real Estate.

Stenographers take dictation of correspondence, reports and other matter, and transcribe the dictated material on a typewriter. In some of the larger offices stenographers may work out of a pool and take dictation from various members of the organization. Later they may be assigned as a regular stenographer to one person. Stenography in small offices may be combined with other office work. There are two general types of stenographic jobs. In the first type, a high level of stenographic skill is required and duties are relatively specialized. Court reporter is an example of this type of job. The second type of stenographic job requires less speed in taking dictation and in transcription but makes other special demands upon the stenographer, according to the position held. Stenographers of this type should be able to operate various office machines, occasionally do some bookkeeping and billing work, maintain an appointment book, and perform other office duties for such men as doctors, dentists, lawyers, brokers, and others.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	.05
Mining	.01
Construction	1.03
Manufacturing	12.55
Transportation, Communication, and Utilities	9.73
Wholesale and Retail Trade	20.74
Finance, Insurance, and Real Estate	21.13
Business and Repair Services	6.41
Personal Services	1.10
Professional and Related Services	13.28
Government Services (n.e.c.)	13.97
	100.00

A general statement might be made that a stenographer should be able to take dictation at a minimum range of 80 to 100 words a minute. The typing rate ordinarily should be between 40 and 60 words per minute. Some positions may require greater or less speed than those just indicated.

There is a constant demand for stenographers. During depressions standards may be raised, but a good stenographer usually can find employment. Some firms, especially railways and transportation companies, use male stenographers. If a man has the right personal and mental qualifications, stenography can be a very good entering position from which to advance. The Government asserts that for the last twenty-five years it has not been able to secure sufficient male stenographers. It has been possible for men doing stenographic work under the civil service to advance to administrative positions. Men also are desired as stenographers in police and court reporting.

Secretaries may relieve company officials of minor executive and clerical duties, take dictation and transcribe it, direct other workers, interview people coming into the office, handle personal and important mail, and perform other related duties. There is a very definite distinction between the degree of responsibility and judgment exercised by stenographers and secretaries. The secretary usually occupies a special position of trust with the employer. There are very few secretaries in proportion to the number of stenographers. Secretaries may start at a beginning salary of $200 to $225. In preparation for secretarial or the better stenographic positions, it is advisable to have a good general educational background.

The ability to type may be considered the most important skill required for modern office work. That this fact be recognized is the deep concern of persons engaged in employment work. In addition to being required for those positions classified as typist, or typist-clerk, typing skill is incidental to innumerable other occupations. The college graduate who goes into business would do well to include typing in his preparation.

Most typing jobs are those in which typing is combined with various other kinds of clerical work.

It is of great advantage to a young man to be able to type. There is a tendency to hire young men as office boys and then promote them from within the organization to higher positions. If the applicant knows how to type he may by-pass the office boy job and progress more rapidly by starting as a typist-clerk. From this position, depending upon his qualifications, he may move into the accounting, personnel, or other department.

The salaries for female clerk-typists with experience range from $140 to $225 monthly. Experienced typist-billers earn from $175 to $190; statistical typists, from $185 to $225; and form typists on insurance policies, $150 to $175. Inexperienced female typists earn from $135 to $185. Male typists earn from $160 to $185 per month.

Typists and other clerical workers should be high school graduates at least; additional education in a junior college or business college is highly desirable.

For further information see:

Vocations For Girls by M. R. Lingenfelter and H. D. Kitson. Harcourt, Brace, New York, 1939.

Vocations For Boys by H. D. Kitson and M. R. Lingenfelter. Harcourt, Brace, New York, 1942.

Careers In Business For Women by D. Smedley and L. Robinson. E. P. Dutton, New York, 1945.

TELEGRAPH AND TELETYPE OPERATORS 1-41. and 1-37.33.

United States employment in 1940—40,660
San Francisco employment in 1947— 870

The modern telegraph operator may be a teletyper or an automatic operator. He rarely sends messages by code, but instead operates an electric power machine with a keyboard similar to that of a typewriter.

The teletype machine, by which practically all messages are sent, is electrically connected to another machine of the same type at the receiving or sending point which in turn reproduces the message.

In 1940, there were 367 operators in San Francisco; in 1947, the number of operators in San Francisco had increased to 870. At present, however, there is a leveling off of demand, probably as a result of technological changes and because of the large number of operators trained during the war.

Industrial Distribution of These Workers

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	.12
Construction	—
Manufacturing	1.61
Transportation, Communication, and Utilities	91.95
Wholesale and Retail Trade	.46
Finance, Insurance, and Real Estate	3.22
Business and Repair Services	1.95
Personal Services	—
Professional and Related Services	—
Government Services (n.e.c.)	.69
	100.00

One large firm, when it does hire potential operators, prefers to provide its own training. Smaller firms tend to hire only experienced operators and to confine training to the method of operation peculiar to that firm. Operators begin at approximately forty-eight dollars per week. Promotion may follow to various supervisorial jobs, one of which is traffic chief.

The 1940 Census reports that 32,460 men and 8,200 women were working in this occupation. Local checking reveals that this ratio varies from firm to firm. One of the larger firms uses many more women than men. Two other companies report a preponderance of men.

For further information see:

Talking Wires by George P. Oslin. Row Peterson, 1942.

An Appraisal and Abstract of Available Literature on the Occupation of the Telegraph Operator. Occupational Index, Inc., New York University, New York, 1939.

TELEPHONE OPERATORS 1-42.

United States employment in 1940—199,680
San Francisco employment in 1947— 3,921

Telephone operators may be employed by the telephone company or as private exchange (commonly called PBX) operators employed by firms other than the telephone company.

The telephone company has a six-week training course for new operators. The operator ordinarily is trained in the office in which eventually she is to be employed, whether it be the long distance office or a district exchange office. During the period of training an operator is paid $34 a week. At the end of a year the salary is approximately $37. Raises follow on an automatic schedule. The working hours are based on a seniority system; the beginning operator is employed on a split shift. Girls who stay with the company have opportunities for promotion.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	.05
Construction	—
Manufacturing	1.84
Transportation, Communication, and Utilities	81.39
Wholesale and Retail Trade	3.99
Finance, Insurance, and Real Estate	3.40
Business and Repair Services	.95
Personal Services	4.52
Professional and Related Services	2.12
Government Services (n.e.c.)	1.74
	100.00

PBX operators may be found in firms which have need for a central switchboard, and many of the larger firms hire girls who already have had telephone company experience. In a small office the operator will operate the switchboard and will perform other clerical tasks when the switchboard is not busy.

For further information see:

Vocations For Girls by M. R. Lingenfelter and H. D. Kitson. Harcourt, Brace, New York, 1939.

Everyday Occupations by M. A. Davey, E. M. Smith, and T. R. Myers. O. C. Heath and Co., Boston, 1941.

OTHER CLERICAL WORKERS

United States employment in 1940—2,085,120
San Francisco employment in 1947— 44,712

This large group of not-elsewhere-classified clerks is necessary for two reasons. In the first place, many office workers do more than one thing and have such varied responsibilities, especially in small offices, that it is impossible to give them a specific designation. In the second place, there are many clerical workers who do such specialized work that their particular titles appear too infrequently in census totals to justify reporting such titles separately.

Some of the clerical occupations included in this classification may be:

agents
attendants
collectors
cash girls
baggage agents
file clerks
control clerks
receptionists
bill collectors
insurance collectors
office machine operators
abstract clerks
bank tellers
general clerks
invoice clerks
stock clerks

Industrial Distribution of These Workers

	Per Cent
Agriculture, Forestry, and Fishing	.03
Mining	.27
Construction	.80
Manufacturing	15.93
Transportation, Communication, and Utilities	23.97
Wholesale and Retail Trade	18.11
Finance, Insurance, and Real Estate	15.89
Business and Repair Services	4.00
Personal Services	3.08
Professional and Related Services	3.59
Government Services (n.e.c.)	14.33
	100.00

Modern offices make use of many time-saving office machines. The operation of some of these machines is learned very rapidly; for the operation of others, a longer period of training is required. This section will mention briefly some of the machine operations for which training is needed.

There is an increasing use of recording machines by means of which the dictator's words are recorded on a disc from which the operator later transcribes the material. There is a shortage of applicants possessing this training. The salary varies from approximately $175 to $225 per month. Operators must be good typists, well-trained in English, and familiar with correspondence forms.

There is a demand for operators of calculating machines upon which simple and complex arithmetical computations can be done rapidly. For operators who wish to develop speed, a training period of several months is necessary. Experienced operators ordinarily earn between $185 and $225 per month; operators who have been trained, but are inexperienced, earn from $160 to $170.

Modern bookkeeping is being done more and more by machine. Billing machine operators must know typewriting because the machines have a

standard typewriting keyboard and, in addition, the keys for calculating extensions on bills. Both bookkeeping machine and billing machine operators earn, when experienced, about $185 to $200.

During recent years, increased use has been made of recording, sorting, tabulating, and similar machines; operators are constantly in demand. One of these machines, the key-punch, makes a series of perforations in a card to indicate certain information. Salaries for experienced key-punch operators range from approximately $170 to $250; trained operators without experience may start at from $150 to $165.

There are about ten different kinds of tabulating machines, most of which are operated primarily by men, although there are some women operators. Some operators know only how to run the machines and how to do a limited amount of the wiring which establishes the connections needed to produce the desired data. Others are familiar with accounting or statistical procedures as well as with the operation and wiring of the machines so that they can act in a supervisory capacity in the management of a statistical department using tabulating equipment. Supervising operators may start at approximately $300 per month. Salaries of other operators range from approximately $190 to $250.

Although women are found to hold the majority of positions in the operation of office machines, many young men find that a knowledge of office machine operation frequently provides an entry into a job which may lead to promotion.

For all general clerical workers it is assumed that a high school education constitutes minimum preparation for the work. Almost all authorities interviewed suggest that post-high school preparation, especially in typing and general business procedures, is helpful.

For further information see:

Careers in Business for Women by D. Smedley and L. Robinson. E. P. Dutton, New York, 1945.

Students and Occupations by E. G. Williamson. Henry Holt, New York, 1937.

Vocations for Girls by M. R. Lingenfelter and H. D. Kitson. Harcourt, Brace, New York, 1939.

INSURANCE SALESMEN AND AGENTS 1-57

United States employment in 1940—243,920
San Francisco employment in 1947— 5,538

An insurance salesman, ordinarily called an insurance agent, sells various types of insurance, whether it be life, fire, casualty, or marine, to his clients. An agent is attached to an insurance company. Most of these companies have home offices and branches, or agencies, throughout the country. A broker who is in business for himself represents a client rather than a particular insurance company. He advises his client regarding insurance protection and then procures the policies from an insurance company. A broker usually deals with several insurance companies.

Both agents and brokers sometimes supplement their own sales efforts by employing solicitors. Solicitors confine their efforts largely to selling and do not assume as much responsibility as do agents or brokers. Young men getting their start in the insurance business usually start as solicitors.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	—
Transportation, Communication, and Utilities	—
Wholesale and Retail Trade	.02
Finance, Insurance, and Real Estate	99.82
Business and Repair Services	.09
Personal Services	.02
Professional and Related Services	.03
Government Services (n.e.c.)	.02
	100.00

University graduates with a broad background have a definite advantage in securing sales positions. A few junior colleges and special schools of business offer semiprofessional training in the theory and the practice of insurance. These courses which are ordinarily two years in length, frequently have been developed in cooperation with the insurance industry. Those who have completed this training, therefore, are in a favored position when seeking employment. More men than women sell insurance; according to the census, of the 243,920 persons selling insurance in the United States only 13,420 were women.

Insurance salesmen should be licensed by the State Insurance Commissioner. Although the examination is identical for brokers, agents, and solicitors, each group secures a different license. The broker, however, must obtain a passing grade of 75%, while the agents and solicitors may pass with a grade of 70%. Before being allowed to take a broker's examination, the applicant must have completed certain courses in insurance or must have had one year's experience, during the preceding three years, with an insurance firm.

Casualty companies are expanding their business by writing an omnibus type of policy. One benefit derived is the linking of casualty business with real estate through the issuing of insurance coverage for accidents in connection with real property. Life insurance companies may gain their expansion not only through sales to new clients but also through repeat sales as clients increase their original policy values, or take out additional policies. These sales practices are important to observe as they affect the trend of

employment. Employment opportunities for insurance salesmen are consistently good. Since working on a commission basis is so prevalent in insurance sales, it is difficult to quote accurate figures reporting the incomes of this group. Brokers and agents work strictly on a commission basis. Solicitors may work on a straight salary or on a salary plus fifty per cent of the commission, or on a straight commission. Larger companies, especially in the life insurance group, train their sales force for a period of six months in a company school. During this time the employee is paid approximately $200 a month.

For further information see:

Vocations For Boys by H. D. Kitson and M. R. Lingenfelter. Harcourt, Brace, New York, 1942.

Selling, A Job That's Always Open by Frances Maule. Harper and Brothers, New York, 1941.

REAL ESTATE SALESMEN AND BROKERS 1-63.

United States employment in 1940—110,640
San Francisco employment in 1947— 2,490

The number of real estate salesmen and brokers has increased rapidly within the last few years. Of the 110,640 listed in the United States Census for 1940, 10,580 were women.

The work of real estate salesmen and brokers is quite similar, with the exception that it is necessary to have a broker's license in order to bind a sales contract. Some real estate salesmen take out both a broker's license and a salesman's license. To obtain a license it is necessary for the applicant to pass an examination given by the State Real Estate Commission. The examination covers technical information needed by those selling real estate and elementary knowledge of arithmetic and bookkeeping. Real estate salesmen and brokers rent and sell property for clients on a commission basis. They must secure listings of properties for sale, evaluate the worth of property, carry through the sales transaction, and complete the closing papers.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	—
Transportation, Communication, and Utilities	—
Wholesale and Retail Trade	.16
Finance, Insurance, and Real Estate	99.68
Business and Repair Services	.04
Personal Services	.12
Professional and Related Services	—
Government Services (n.e.c.)	—
	100.00

Real estate salesmen and brokers must know real estate values, something about the clearing of titles, zoning restrictions, and construction of buildings. They must be familiar with real estate law. Because remuneration is on the commission basis, it is difficult to make an estimate of average earnings. Depending upon the condition of the real estate market, earnings may range from $2,000 to $6,000 or more annually. Commissions are sometimes divided between the salesman and the broker for whom the salesman works. Junior college or university training, which has included a study of real estate, is helpful for one who plans to enter this work. The number of people who find it profitable to sell real estate varies according to the economic condition of the community. There is considerable movement of real estate salesmen and brokers from one community to another, with the result that there are always opportunities for newcomers.

For further information see:

Counselors Handbook on Distributive Occupations, Bureau of Business Education. State Department of Education, Sacramento, 1946.

Vocations For Boys by H. D. Kitson and M. R. Lingenfelter. Harcourt, Brace, New York, 1942.

OTHER SALES WORKERS

United States employment in 1940—2,554,620
San Francisco employment in 1947— 47,894

This large group of Other Sales Workers is left because the census reports do not provide any means of making a finer tabulation of sales occupations by industry. In the 1940 Census the first attempt was made to separate clerks in stores, or sales persons, from clerks in offices and elsewhere. But there exists no analysis of sales clerks by industry, which is a necessary factor for a study of this kind.

Some of the sales work performed by those persons accounted for under Other Sales Workers is of a very high order, requiring great skill, knowledge of the product, and experience. On the other hand, some of this sales work is routine and consists primarily of wrapping an article and making change for the customer.

Some of the occupations included here are:

canvassers
salesmen
sales clerks, any store
newsboys
traveling salesmen
solicitors
saleswomen
auctioneers
hucksters
peddlers
book agents
subscription agents
demonstrators
hawkers
sales agents

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	.03
Mining	.01
Construction	.21
Manufacturing	10.66
Transportation, Communication, and Utilities	1.22
Wholesale and Retail Trade	83.85
Finance, Insurance, and Real Estate	1.06
Business and Repair Services	2.19
Personal Services	.46
Professional and Related Services	.28
Government Services (n.e.c.)	.03
	100.00

Applicants frequently begin as sales trainees with a fairly large organization. Many department stores and insurance companies have well-organized training programs for the induction and training of new employees. Branch store managers of chain merchandising companies often are selected because they have shown promise as trainees. Many firms like to have a young applicant offer some junior college or college preparation in bookkeeping or accounting, and sales promotion. Frequently trainees are paid a straight salary of $200 for from two months to a year, after which they may receive salary plus commission.

For further information see:

Everyday Occupations by M. A. Davey, E. M. Smith, and T. R. Myers. D. C. Heath and Co., Boston, 1941.

Students and Occupations by E. G. Williamson. Henry Holt, New York, 1937.

CRAFTSMEN, FOREMEN AND KINDRED OCCUPATIONS

United States employment in 1940—5,055,722
San Francisco employment in 1947— 57,248

The *Sixteenth Census of the United States, 1940,* classifies a craftsman as "one who is engaged in a manual pursuit, usually not routine, for the pursuance of which a long period of training or an apprenticeship is usually necessary, and which in its pursuance calls for a high degree of judgment and of manual dexterity, one or both, and for ability to work with a minimum of supervision and to exercise responsibility for valuable product and equipment. A foreman is one who directs other workers, under the supervision of a proprietor or a manager."

Some difficulty is experienced in obtaining precise definitions of some of the skilled crafts. For example, "Machinist" sometimes covers a wide range of skills which range from those required of a toolmaker, at the upper end of the scale, to those required of a machine operator. Painter, for example, may include decorators, factory painters, craftsmen painters, and maintenance painters.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	.02
Mining	.04
Construction	29.19
Manufacturing	36.33
Transportation, Communication, and Utilities	8.23
Wholesale and Retail Trade	11.93
Finance, Insurance, and Real Estate	1.01
Business and Repair Services	8.64
Personal Services	1.79
Professional and Related Services	1.06
Government Services (n.e.c.)	1.76
	100.00

More and more is graduation from high school or trade school being required of men entering the skilled trades. The Craftsman group represents the top rung of the ladder for skilled workmen, both in level of work and responsibility, and in the better wages and hours afforded them. For those who wish to advance to foreman, supervisor, or inspector, or even to become independent contractors or company officials, technical training beyond the twelfth grade is desirable. In San Francisco, most trades are unionized, and entrance into the work is through an apprenticeship. Twelve per cent of the employed workers in San Francisco belonged to this skilled craftsman group in 1947. About three per cent of these were women.

BAKERS 4-01.

United States employment in 1940—130,000
San Francisco employment in 1947— 1,604

The occupational title "Baker" is reserved for one who has mastered all the phases of his craft, and is able to perform all the operations involved in the preparation of bakery products. In the 1940 Census, the number of bakers reached a new high mark; about ten per cent of bakers are women.

In San Francisco about two-thirds of all working bakers are in retail or retail-wholesale shops. The other third are employed in wholesale or manufacturing bakeries. There is a growing tendency toward specialization among the bakers, with one man doing the mixing, another tending the ovens, etc. This is especially true of the wholesale bakeries.

A two-year apprenticeship is usual in this craft. Opportunities for helpers and apprentice bakers in a shop where the entire baking process can be learned are limited. Probably the beginner's best oportunity to learn is in the small retail shop where the whole procedure may be observed.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	33.48
Transportation, Communication, and Utilities	1.06
Wholesale and Retail Trade	63.09
Finance, Insurance, and Real Estate	—
Business and Repair Services	—
Personal Services	1.06
Professional and Related Services	1.00
Government Services (n.e.c.)	.31
	100.00

The employment outlook for bakers indicates a fairly steady demand. Earnings range from $40 to $60 weekly. Icing and cake decorator workers frequently earn much more.

For further information see:

Everyday Occupations by M. A. Davey, E. M. Smith, and T. R. Myers. D. C. Heath and Co., Boston, 1941.

500 Postwar Jobs for Men by Lura Robinson. Doubleday, Doran, New York, 1945.

Students and Occupations by E. G. Williamson. Henry Holt, New York, 1937.

BLACKSMITHS, FORGEMEN, AND HAMMERMEN 4-86.

United States employment in 1940—70,540
San Francisco employment in 1947— 719

These three related skills have to do with the shaping and repair of metal and metal parts by heating iron in a forge and bending, forming, and shaping metal by hand or machine. Tempering and annealing, as well as forge-welding of metal may be done by these workers. Many blacksmiths are proprietors or owners of small repair shops, where they mend small tools, auto and truck parts, and farm and garden equipment. Railroad shops and naval shipyards are large employers of these craftsmen.

Men usually enter these occupations as helpers or apprentices. Long range prospects for young men entering this trade are favorable. Few young men have entered this trade in recent years, and replacement of retiring workers may offer opportunities for stable employment. A weekly wage of between $45 and $60 was current in 1947.

Industrial Distribution of These Workers

	PER CENT
Agriculture, Forestry, and Fishing	.14
Mining	.14
Construction	3.76
Manufacturing	31.20
Transportation, Communication, and Utilities	6.55
Wholesale and Retail Trade	1.11
Finance, Insurance, and Real Estate	—
Business and Repair Services	53.90
Personal Services	.14
Professional and Related Services	.28
Government Services (n.e.c.)	2.78
	100.00

BOILERMAKERS

United States employment in 1940—27,460
San Francisco employment in 1947— 410

The *Dictionary of Occupational Titles* calls a boilermaker one who "performs any or all machine and hand operations necessary to fabricate and assemble boilers, tanks, vats, and other vessels made of heavy steelplates."

Boilermakers serve a four-year apprenticeship in San Francisco. The entrant is expected to be accurate, have a strong body and nerves, and possess a basic knowledge of mathematics, mechanical drawing, metals, and welding. Some men in this field become boiler inspectors for insurance companies or governmental agencies.

The long term outlook for employment in this field is unfavorable. Railroad companies have shown a steady decline since 1930 in the employment of boilermakers. On the other hand, there will be some replacement since boilermakers generally are of an older age group. Earnings for boilermakers range from $2,000 to $3,500 yearly.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	2.20
Manufacturing	79.03
Transportation, Communication, and Utilities	17.07
Wholesale and Retail Trade	.24
Finance, Insurance, and Real Estate	—
Business and Repair Services	1.22
Personal Services	—
Professional and Related Services	—
Government Services (n.e.c.)	.24
	100.00

For further information see:

500 Postwar Jobs For Men by Lura Robinson. Doubleday, Doran, New York 1945.

My Life Work by R. L. Cooley et al. McGraw-Hill, New York, 1930.

Occupational Outlook Information, Veterans' Administration Manual M7-1 and supplements. U. S. Government Printing Office, Washington, D.C., 1946.

CABINET AND PATTERNMAKERS 4-32. and 5-17.

United States employment in 1940—82,720
San Francisco employment in 1947— 1,468

The cabinetmaker makes high quality furniture for the home, office, or store, either with hand tools or with power tools. In former years, the complete job from reading the blueprints to finishing the chair, table, or cabinet was performed by the all-around cabinetmaker. Much specialization has occurred lately, however, and the cabinetmaker's task has been divided into simpler jobs such as frame maker, chair maker, case clamp man, etc. It is estimated by the United States Employment Service that "less than three per cent of total workers in large furniture factories are cabinetmakers." Job prospects will remain good as long as purchasing power and general economic conditions are favorable. Cabinetmakers earn from $45 to $75 weekly and earnings generally are not affected by season changes.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	1.84
Manufacturing	88.00
Transportation, Communication, and Utilities	.75
Wholesale and Retail Trade	5.66
Finance, Insurance, and Real Estate	.07
Business and Repair Services	3.00
Personal Services	.14
Professional and Related Services	.27
Government Services (n.e.c.)	.27
	100.00

The patternmaker, working from drawings and blueprints, designs and makes wooden or metal patterns for the casting of metal parts and equipment. This is a small, yet highly skilled trade; there are only about 14,000 such men now employed in the entire United States. Apprenticeships last four or five years, and earnings often exceed $2.00 an hour. Employment should remain fairly stable for the next five years.

For further information see:

500 Postwar Jobs for Men by Lura Robinson. Doubleday, Doran, New York, 1945.

Establishing and Operating a Small Woodworking Shop, U. S. Dept. of Commerce. Government Printing Office, Washington, D.C.

CARPENTERS 5-25.

United States employment in 1940—554,495
San Francisco employment in 1947— 8,098

The carpenter is the key man in the building trades. He constructs framework of wood, installs trim, lays floors, puts on roof, hangs doors, installs sashes, constructs staircases, erects scaffolds, runways, concrete forms, etc. Most carpenters are employed on new construction and in building maintenance and repair work. Inspection of Chart II will show that almost every industry employs carpenters as maintenance men.

Apprenticeship is usually for four years, although some men acquire experience as helpers. The employment outlook for the next five years and perhaps longer is excellent. Recent estimates indicate that there is a backlog of 40 billion dollars worth of housing to be erected in this country. Remodeling and repairs are contemplated by millions of home owners.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	.01
Mining	.01
Construction	75.02
Manufacturing	18.01
Transportation, Communication, and Utilities	3.04
Wholesale and Retail Trade	1.20
Finance, Real Estate, and Insurance	.67
Business and Repair Services	.28
Personal Services	.28
Professional and Related Services	.89
Government Services (n.e.c.)	.59
	100.00

Carpenters in San Francisco earn about eighty dollars weekly.

For further information see:

500 Postwar Jobs for Men by Lura Robinson. Doubleday, Doran, New York, 1945.

Students and Occupations by E. G. Williamson. Henry Holt, New York, 1937.

Outdoor Jobs for Men by Lura Robinson. The Vanguard Press, New York, 1947.

COMPOSITORS AND TYPESETTERS 4-44.

United States employment in 1940—157,405
San Francisco employment in 1947— 1,944

Although some occupational classifications list machine and hand set compositors separately, the census has chosen to put all typesetters and compositors, both machine and hand, in one. These skilled craftsmen mark sizes on copy, select type, set type in sticks or slugs, and redistribute type when it has been used. Machine typesetters are called linotype operators.

A six-year apprenticeship is required in San Francisco for this trade. The requirements for entry include a good command of English, spelling, and punctuation; the apprentice must be neat and accurate.

The outlook for the near future is good for all fully trained journeymen. The long range outlook is clouded by the as yet unknown effects of the use of offset printing machines of various types. San Francisco, New York, and Chicago are the three great centers of commercial printing in this country. Earnings in 1947 averaged about $90 weekly for compositors. Newspapers generally pay more than this and higher wages are paid for night work.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	93.78
Transportation, Communication, and Utilities	.21
Wholesale and Retail Trade	.87
Finance, Insurance, and Real Estate	.82
Business and Repair Services	3.19
Personal Services	.21
Professional and Related Services	.41
Government Services (n.e.c.)	.51
	100.00

For further information see:

500 Postwar Jobs for Men by Lura Robinson. Doubleday, Doran, New York, 1945.

All in the Day's Work by Robbins and Medary. D. Appleton-Century, New York, 1944.

Vocations for Boys by H. D. Kitson and M. R. Lingenfelter. Harcourt Brace, New York, 1942.

ELECTRICIANS 4-97.

United States employment in 1940—197,080
San Francisco employment in 1947— 2,418

The electrician lays out, assembles, tests, and installs wiring in houses, buildings, plants; he tests and installs electrical fixtures and control equipment. He may also assemble, test, and construct electrical devices in factories. The three main divisions of this craft are construction electricians, electrical repairmen, and electric power service employees.

Apprenticeship in the electrical trades lasts four years in San Francisco. A high school education plus some technical training is required for those who wish to go ahead in these fields. An electrician can advance to foreman, inspector, chief electricain, or independent contractor.

The employment outlook for the future is good. Increased lighting and power loads, electronics developments, air-conditioning, and electrical labor-saving devices should bring great opportunities in this field. Earnings range from $50 to $85 weekly, with the construction electrician receiving better pay than the average.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	.08
Construction	33.35
Manufacturing	31.24
Transportation, Communication, and Utilities	15.22
Wholesale and Retail Trade	7.20
Finance, Insurance, and Real Estate	1.03
Business and Repair Services	3.52
Personal Services	.66
Professional and Related Services	3.31
Government Services (n.e.c.)	4.39
	100.00

For further information see:

Everyday Occupations by M. A. Davey, E. M. Smith, and T. R. Meyers. D. C. Heath and Co., Boston, 1941.

Vocations For Boys by H. D. Kitson and M. R. Lingenfelter. Harcourt, Brace, New York, 1942.

500 Post War Jobs For Men by Lura Robinson. Doubleday, Doran, New York, 1945.

Outdoor Jobs For Men by Lura Robinson. The Vanguard Press, New York, 1947.

FOREMEN 5-91 through 5-99.

United States employment in 1940—529,540
San Francisco employment in 1947— 4,465

A foreman is a boss, chief, head, leader, overseer, senior, or supervisor. He may determine the procedure or flow of work, interpret blueprints, assign work, issue written or verbal orders, inspect work for quality and quantity, and maintain harmony among workers. The essential requirements of his job are that he know his craft and all processes involved. He must be willing to take responsibility, and must work well in emergency situations.

The title is usually related to a particular craft. Since a foreman's job is usually a promotional one, and competition for it may be keen, extra training will be of advantage to the craftsman seeking promotion. Foremen frequently must keep records and do some clerical work.

Industrial Distribution of These Workers

	PER CENT
Agriculture, Forestry, and Fishing	.07
Mining	.11
Construction	15.11
Manufacturing	38.61
Transportation, Communication, and Utilities	23.90
Wholesale and Retail Trade	12.47
Finance, Insurance, and Real Estate	.81
Business and Repair Services	1.70
Personal Services	1.44
Professional and Related Services	1.21
Government Services (n.e.c.)	4.57
	100.00

If industry continues its tendency to break jobs down into simple processes that can be performed by routine workers, the need for qualified foremen will be even greater. The reader should bear in mind that the title Foreman is a broad term which is used by the census to apply to those persons who direct other workers. The workers supervised by foremen may be skilled, semiskilled, or unskilled. About seven per cent of foremen are women; the highest percentage was found in the food industries. The technical school or institute that provides at least two years of training beyond the high school is a sound training ground for young men who wish to enter the shop and go on from there in industry.

For further information see:

New Careers in Industry by J. M. Amiss and E. Sherman. McGraw-Hill, New York, 1946.

INSPECTORS (n.e.c.)

United States employment in 1940—65,380
San Francisco employment in 1947— 512

Inspector means different things in different industries. Close examination of census publications and comparison of census reports on the numbers of inspectors in various industrial classifications with the examples listed in the *Classified Index of Occupations* (6), gives some clue to the confusion that exists in this occupational title.

We must infer from an examination of Chart III that the 60 Inspectors in the Construction industry probably are those city employees who inspect buildings for conformity with the laws of the community. These inspectors are obviously skilled persons who must exercise judgment in the discharge of their duties.

On the other hand, the persons reported by the census as being inspectors in Manufacturing, appear from our investigation to be workers at routine tasks. These workers are those who inspect, sort, and grade articles for quality, size, color, etc. This is the task of an unskilled or semiskilled worker.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	.20
Construction	11.72
Manufacturing	15.23
Transportation, Communication, and Utilities	50.39
Wholesale and Retail Trade	12.11
Finance, Insurance, and Real Estate	2.73
Business and Repair Services	7.03
Personal Services	—
Professional and Related Services	.59
Government Services (n.e.c.)	—
	100.00

This is a typical example of the difficulties confronting those who would make a house-to-house enumeration of workers as a means of securing occupation-industry information. Workers have reported themselves as Inspectors regardless of the degree of responsibility assumed. Typical illustrations of the duties performed by those reporting themselves as Inspectors are

1. In the Construction industry—inspection of buildings for conformity with building codes.
2. In the Manufacturing industry—inspection of product for flaws or irregularities.
3. In the Transportation, Communication, and Utilities industry—control and dispatching of street railway vehicles, inspection of switchboard installation, inspection of sewer, gas, and power installations for conformity with city regulations.
4. In the Wholesale and Retail Trade industry—inspection of merchandise for flaws or damage, or the inspection of restaurants for compliance with sanitary regulations of the city.

LOCOMOTIVE ENGINEER 5-41.

United States employment in 1940—68,720
San Francisco employment in 1947— 202

Locomotive engineers operate steam or diesel engines on a railroad, in accordance with the orders of the conductor, looking out for the safety and mechanical operation of the train at all times. There are no women engineers. The craft suffered a loss of almost a third of its workers during the depression, but totaled 68,720 in 1940. At that time almost fifty-thousand workers a year were entering railroad work.

Only by serving his apprenticeship as a locomotive fireman can a man become a locomotive engineer. Both these crafts are controlled on a strict seniority basis. In slack times, the engineer "bumps" the fireman, who must take a lower job on the "extra board" or lay off for a time.

The man entering railroad work must have good health and good eyesight, must have a high school education, and must be alert and ambitious. The long range outlook for the employment of railroad workers is good. Earnings run from $3,500 to $5,400 annually.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	—
Transportation, Communication, and Utilities	100.00
Wholesale and Retail Trade	—
Finance, Insurance, and Real Estate	—
Business and Repair Services	—
Personal Services	—
Professional and Related Services	—
Government Services (n.e.c.)	—
	100.00

For further information see:

500 Postwar Jobs for Men by Lura Robinson. Doubleday, Doran, New York, 1945.

Outdoor Jobs for Men by Lura Robinson. The Vanguard Press, New York, 1947.

Vocations for Boys by H. D. Kitson and M. R. Lingenfelter. Harcourt, Brace, New York, 1942.

LOCOMOTIVE FIREMEN 5-42.

United States employment in 1940—43,580
San Francisco employment in 1947— 130

The fireman attends to the supply of fuel and water in the tender, operates controls to secure the proper heat and steam pressure and assists the engineer in observing signals and carrying out orders or directions. This job leads to that of locomotive engineer. Firemen also suffered a severe loss in numbers during the depression, but in normal times employment is steady.

The fireman may enter the craft as a mechanic or helper in the round house or shop and become hostler and then fireman. Seniority is usually the controlling factor. Educational requirements are not high. Primary emphasis is placed on mechanical ability, health and eyesight, and hard work.

The long range outlook is for stable employment and steady demand for these workers. Competition of truck and air lines is being met by the railroads by emphasis upon new equipment and faster schedules. Earnings of firemen range from $2,700 to $4,200 annually.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	—
Transportation, Communication, and Utilities	100.00
Wholesale and Retail Trade	—
Finance, Insurance, and Real Estate	—
Business and Repair Services	—
Personal Services	—
Professional and Related Services	—
Government Services (n.e.c.)	—
	100.00

For further information see:

Outdoor Jobs For Men by Lura Robinson. The Vanguard Press, New York, 1947.

Vocations For Boys by Kitson and Lingenfelter. Harcourt, Brace, New York, 1942.

MACHINISTS, MILLWRIGHTS, AND TOOL MAKERS

4-75., 4-76., and 5-78.

United States employment in 1940—604,280

San Francisco employment in 1947— 5,174

The machinists in this category are narrowly defined as all-around craftsmen who read and interpret blueprints, layout and perform all operations on standard machine tools, as differentiated from men performing simpler machine-operator duties. The all-around machinists work in maintenance shops, production shops, and job shops. Tool makers are the men who make the tools and machines used by machinists; they are usually referred to as tool and die makers. They construct, repair, maintain, and calibrate the tools and instruments used in the production of metal and mechanical devices. The millwright is the man who installs, moves, and erects heavy machinery; he often maintains and repairs such machinery.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	.02
Construction	.99
Manufacturing	87.92
Transportation, Communication, and Utilities	6.13
Wholesale and Retail Trade	1.92
Finance, Insurance, and Real Estate	.06
Business and Repair Services	1.24
Personal Services	.15
Professional and Related Services	.35
Government Services (n.e.c.)	1.22
	100.00

Apprenticeships for these crafts last four years, and a high school education with emphasis upon laboratory work and mathematics is basic. The machinist and tool maker must be skillful and should be familiar with the *Mechanics Handbook*. In San Francisco in 1948, Machinists were earning $66.80, Tool Makers $80.40, and Millwrights $85 weekly. These are minimum union wages; especially able men regularly receive more. Employment prospects are good for the fully qualified craftsman.

For further information see:

New Careers In Industry by J. M. Amiss and E. Sherman. McGraw-Hill, New York, 1946.

500 Postwar Jobs For Men by Lura Robinson. Doubleday, Doran, New York, 1945.

Vocations For Boys by H. D. Kitson and M. R. Lingenfelter. Harcourt, Brace, New York, 1942.

MASONS, TILESETTERS, AND STONECUTTERS

4-68., 5-24., 6-69., and 7-24.

United States employment in 1940—104,900

San Francisco employment in 1947— 1,260

These related crafts depend upon general construction activity in the building trades for their employment. They build structures of stone and brick, finish interior and exterior with tile and brick, and cut and install decorative and functional stone and masonry. These are ancient crafts, still performed mainly with simple hand tools.

Men enter these trades ordinarily under union regulation as apprentices or helpers. This learning period lasts for three years for bricklayers and stonecutters, and four years for tilesetters. Because of the structural problems of building complicated angles and forms, some experience in high school mathematics and blueprint reading is important for these craftsmen.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	93.41
Manufacturing	3.73
Transportation, Communication, and Utilities	.32
Wholesale and Retail Trade	1.19
Finance, Insurance, and Real Estate	.40
Business and Repair Services	.08
Personal Services	—
Professional and Related Services	.32
Government Services (n.e.c.)	.55
	100.00

The employment outlook for these workers is good as long as construction continues at a high level. Since 1940, there has been a shortage of apprentices, and the age level of the journeyman is now fairly high. Earnings in San Francisco in 1948 ranged from $300 to $350 monthly.

For further information see:

Dictionary of Occupational Titles. U. S. Employment Service, Government Printing Office, Washington, D.C., 1939.

Outdoor Jobs For Men by Lura Robinson. The Vanguard Press, New York, 1947.

MECHANICS AND REPAIRMEN 5-79. through 5-83.

United States employment in 1940—860,740
San Francisco employment in 1947— 7,252

The automobile mechanic and repairman is the craftsman who maintains our automobiles and trucks. The general mechanic or repairman may be employed in a specific industry or establishment to repair, maintain, and service equipment and machinery. Some mechanics operate their own shops, in which they repair agricultural equipment, office machines, home appliances, or other equipment.

An apprenticeship of four years is the usual route to such jobs. A sound education in machine shop, mechanical drawing, and mathematics in the high school is important for success in this field. Lines of promotion lead to shop foreman, inspector, and service foreman. Business and Repair Services, Wholesale and Retail Trade, Transportation, Communication, and Utilities, and Manufacturing employ the largest numbers of mechanics and repairmen in San Francisco. Mechanics are now earning $75 a week as a minimum, but many shops pay up to 25 per cent more to keep a good man. Heavy truck repairmen have a higher wage scale.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	.03
Mining	.03
Construction	4.78
Manufacturing	16.74
Transportation, Communication, and Utilities	17.15
Wholesale and Retail Trade	16.05
Finance, Insurance, and Real Estate	2.06
Business and Repair Services	36.62
Personal Services	.86
Professional and Related Services	1.50
Government Services (n.e.c.)	4.18
	100.00

Employment prospects indicate continued demand for well-trained mechanics. Aircraft mechanics with the "A and E" license will find jobs. Competition for beginning jobs and apprenticeships will be keen because of the large number of war-trained mechanics.

For further information see:

New Careers In Industry by J. M. Amiss and E. Sherman. McGraw-Hill, New York, 1946.

Students and Occupations by E. G. Williamson. Henry Holt, New York, 1937.

MOLDERS, METAL 4-81.

United States employment in 1940—75,240
San Francisco employment in 1947— 702

The Molder makes sand molds into which molten metal is poured to make castings. He may do the compacting and withdraw the pattern, set and assemble cores, and assist in or direct the pouring. Employment in this occupation has been decreasing for some time. The increased use of thermoplastic materials, however, may open opportunities for molders. Much of the demand for molders is in the middlewestern and northeastern states.

An apprenticeship is four years in length, and physical strength and manual dexterity are important requirements. Much scientific improvement and technical advances may be made in foundries in the future, and the man with a good education may find opportunity in this field. Molders received $1.67 an hour in 1948.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	99.15
Transportation, Communication, and Utilities	.28
Wholesale and Retail Trade	—
Finance, Insurance, and Real Estate	—
Business and Repair Services	.57
Personal Services	—
Professional and Related Services	—
Government Services (n.e.c.)	—
	100.00

PAINTERS, PAPERHANGERS, AND GLAZIERS

5-27., 5-28., and 5-77.

United States employment in 1940—349,340

San Francisco employment in 1947— 5,059

The painter mixes, stirs, and combines paints and colors and applies them with brush or spray gun. He may specialize in interior finishing and tinting or in painting the exteriors of homes and other structures. The paperhanger decorates interiors by cutting, pasting, placing, and matching wall paper to form a wall covering. The glazier cuts glass and installs it in windows, doors, skylights, etc. He also cuts and fits mirrors.

Men usually enter these crafts through an apprenticeship of four years. Neatness, accuracy, and a good eye for color are special requirements. These craftsmen may advance to foreman or estimator, and sometimes become independent contractors. The crafts are unionized in San Francisco, and entrance into them is regulated.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	70.40
Manufacturing	10.38
Transportation, Communication, and Utilities	2.06
Wholesale and Retail Trade	1.90
Finance, Insurance, and Real Estate	1.88
Business and Repair Services	10.83
Personal Services	.81
Professional and Related Services	.97
Government Services (n.e.c.)	.77
	100.00

The employment prospects for these crafts are good for as long as building continues at a high rate. About seventy per cent of these craftsmen are employed in construction, the others as repair and maintenance workers. They earn from $300 to $350 monthly.

For further information see:

Training For the Painting and Decorating Trade by L. G. Stier. U. S. Office of Education, Washington, D.C., 1938.

Outdoor Jobs For Men by Lura Robinson. The Vanguard Press, New York, 1947.

PLASTERERS AND CEMENT FINISHERS 5-29. and 5-26.

United States employment in 1940—52,380
San Francisco employment in 1947— 994

The plasterer applies plaster to walls and ceilings by spreading the plaster over laths and smoothing it with appropriate tools. Cement finishers smoothe concrete and secure the proper texture and color on walls, floors, or other cement surfaces. They also may supervise the laying of forms and the rough concrete work.

A four-year apprenticeship is usual for these occupations. Physical stamina and manual dexterity are important for this work, as is an eye for color. These craftsmen may advance to foreman or contractor. The need for plasterers and cement finishers depends upon the volume of new construction and alterations in progress. There is expected to be a shortage of plasterers because general age level of present workers is relatively high and few apprentices were trained during the depression. Earnings range from $85 to $95 a week.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	99.00
Manufacturing	.40
Transportation, Communication, and Utilities	—
Wholesale and Retail Trade	—
Finance, Insurance, and Real Estate	.30
Business and Repair Services	—
Personal Services	—
Professional and Related Services	.20
Government Services (n.e.c.)	.10
	100.00

For further information see:

500 Post War Jobs For Men by Lura Robinson. Doubleday, Doran, New York, 1945.

Students and Occupations by E. G. Williamson. Henry Holt, New York, 1937.

PLUMBERS, GAS, AND STEAMFITTERS 5-30.

United States employment in 1940—173,520
San Francisco employment in 1947— 2,350

Plumbers assemble and install gas, water, and waste-disposal systems, and gas, water, and sanitary equipment. Steamfitters and gas fitters assemble and install furnaces, pipes, and boilers for heating and steam works. Most of these craftsmen work in construction, but many are employed at maintenance and repair work by private industries and public utilities. These craftsmen may become foremen, inspectors, and independent contractors.

Because these are highly skilled crafts, a five-year apprenticeship is the general rule before one can become a journeyman. A good basic education with emphasis upon mathematics and the use of many tools is recommended for the prospective apprentice. Master plumbers are licensed.

Employment prospects are good, probably for many years. Few apprentices have been trained in the last ten years, and the present shortage is expected to continue. Journeyman plumbers were paid about $90 weekly in 1948.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	64.37
Manufacturing	25.33
Transportation, Communication, and Utilities	4.73
Wholesale and Retail Trade	2.21
Finance, Insurance, and Real Estate	.47
Business and Repair Services	.17
Personal Services	.38
Professional and Related Services	.72
Government Services (n.e.c.)	1.62
	100.00

For further information see:

500 Post War Jobs For Men by Lura Robinson. Doubleday, Doran, New York, 1945.

Master Plumber. Fortune Magazine, March 1940.

Vocations For Boys by H. D. Kitson and M. R. Lingenfelter. Harcourt, Brace, New York, 1942.

Occupational Outlook Information, V. A. Manual M7-1. Government Printing Office, Washington, D.C., 1946.

PRINTING CRAFTSMEN 4-45. through 4-49.

United States employment in 1940—61,940

San Francisco employment in 1947— 1,485

This is a broad classification in the census, and includes electrotypers, stereotypers, pressmen, plate printers, photoengravers, lithographers, bookbinders, etc. In fact, all printing craftsmen except compositors and typesetters are counted here. Information about the many duties of the occupations listed above may be secured by reference to the *Dictionary of Occupational Titles.*

Apprenticeships in these crafts are from two to six years in length. The long range outlook for jobs in these fields is relatively good. Business slumps have not affected printing occupations as severely as others. The small percentage of women who are employed in the printing trades are found in the jobs requiring less training such as printing specialties and bindery work.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	93.74
Transportation, Communication, and Utilities	.13
Wholesale and Retail Trade	.27
Finance, Insurance, and Real Estate	.27
Business and Repair Services	3.77
Personal Services	.74
Professional and Related Services	.07
Government Services (n.e.c.)	1.01
	100.00

Lithographers in San Francisco earn from $64.50 to $97 weekly, pressmen about $90, and photoengravers about $96 weekly.

For further information see:

The Graphic Arts by L. V. Johnson and W. H. Newkirk. The Macmillan Co., New York, 1942.

The Printing Trades and Their Workers by Florence E. Clarke. International Textbook Co., Scranton, Pa., 1939.

ROLLERS AND ROLL HANDS, METAL 4-88.

United States employment in 1940—26,360
San Francisco employment in 1947— 34

These skilled workers operate power-driven roller-die machines in forging heated iron bars into specified sizes and shapes. They ordinarily work in large iron-working plants, located primarily in the northeastern and middle-western states. Very few such craftsmen are employed in the San Francisco area.

These skills are usually learned on the job as an apprentice or helper. Ability to use tools, and physical strength are important. There is probably no prospect of any great increase in employment at this craft in San Francisco. Earnings of these workers sometimes are dependent upon the quantity of metal processed during a shift.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	100.00
Transportation, Communication, and Utilities	—
Wholesale and Retail Trade	—
Finance, Insurance, and Real Estate	—
Business and Repair Services	—
Personal Services	—
Professional and Related Services	—
Government Services (n.e.c.)	—
	100.00

For further information see:

Job Guide by S. H. Kasper. American Council on Public Affairs, Washington, D.C., 1945.

500 Postwar Jobs For Men by Lura Robinson. Doubleday, Doran, New York, 1945.

ROOFERS AND SHEET METAL WORKERS 7-31. and 4-80.

United States employment in 1940—104,360
San Francisco employment in 1947— 1,440

Roofers lay and apply all kinds of asphalt, tar, gravel, metal, terra cotta, tile, slate, and shingle roofs. The sheet metal worker cuts, forms, and fabricates metal for roofs, interior ducts, channels, and receptacles in buildings, and equipment and fixtures for buildings. He is the modern counterpart of the tinsmith of former times.

The roofer serves an apprenticeship of three years, and the sheet metal worker an apprenticeship of four and a half years. Physical strength, knowledge of mathematics, and ability to read blueprints contribute to success in these lines. Fully qualified sheet metal workers are employed in the construction industry, by many manufacturing plants, and in plants building bodies for automobiles or aircraft.

It is reported that by 1950 the demand for such workers may be double what is was in 1940. Earnings approximate $2 an hour.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	35.33
Manufacturing	59.46
Transportation, Communication, and Utilities	2.22
Wholesale and Retail Trade	1.32
Finance, Insurance, and Real Estate	.07
Business and Repair Services	1.11
Personal Services	—
Professional and Related Services	.07
Government Services (n.e.c.)	.42
	100.00

For further information see:

Sheet Metal Work by W. Neubecker. American Technical Society, 1938.

500 Post War Jobs For Men by Lura Robinson. Doubleday, Doran, New York, 1945.

SHOEMAKERS AND REPAIRERS 4-60.

United States employment in 1940—58,420
San Francisco employment in 1947— 620

The shoe repairman resoles, reheels, and repairs shoes. He stretches shoes that are too tight, patches and sews torn places, and replaces lifts and inner linings. He may install corrective devices prescribed by an orthopedic doctor. He frequently completes the job by shining the shoes for the customer.

Shoe repairmen serve an apprenticeship of two and a half years. They may work for other craftsmen, or open a small shop on their own. A successful apprenticeship, a knowledge of small-business methods, sales ability, and a pleasing manner are assets to the shoe repairman.

In 1940 over three-fourths of the shoe repairmen owned their own shops. Most of these were one man businesses. Earnings range from $50 to $80 a week.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	—
Transportation, Communication, and Utilities	—
Wholesale and Retail Trade	7.10
Finance, Insurance, and Real Estate	—
Business and Repair Services	.16
Personal Services	92.10
Professional and Related Services	.32
Government Services (n.e.c.)	.32
	100.00

For further information see:

Occupational Outlook Information, V. A. Manual M7-1 and supplements. Government Printing Office, Washington, D.C., 1946.

The Shoeman's Manual by V. K. Cameron. William F. Gill, 1941.

Students and Occupations by E. G. Williamson. Henry Holt, New York, 1937.

STATIONARY ENGINEERS 5-72.

United States employment in 1940—184,820
San Francisco employment in 1947— 1,435

The stationary engineer operates and maintains stationary engines and mechanical equipment, such as steam engines, air compressors, generators, motors, turbines, ventilating and refrigerating equipment, steam boilers, and boiler-feed-water pumps. He must also keep records, read meters, and maintain a stock of supplies.

Entry into this occupation is usually through experience at sea or in construction-machine steam plants of various sorts. Licenses are required in some communities, but not in San Francisco. The stationary engineer must have some of the knowledge and skills of the machinist, mechanic, and plumber, or steamfitter. They are hired to operate steam plants, by utility companies, building owners, and large industries. In 1948 chief engineers earned about three hundred seventy-five dollars monthly, and journeymen about three hundred dollars. The increased use of Diesel engines as power plants may improve employment prospects for stationary engineers.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	.07
Mining	.49
Construction	6.58
Manufacturing	29.76
Transportation, Communication, and Utilities	21.85
Wholesale and Retail Trade	8.20
Finance, Insurance, and Real Estate	9.39
Business and Repair Services	.14
Personal Services	7.84
Professional and Related Services	8.05
Government Services (n.e.c.)	7.63
	100.00

CRANEMEN, HOISTMEN, AND CONSTRUCTION MACHINE OPERATORS 5-73. and 5-23.

These are the workmen who drive the bulldozers, blade-graders, and tractors, and who operate the cranes and hoists, jack-hammers, air-compressors, asphalt and cement pouring machines, and power shovels. These crafts are employed in the construction of highways, buildings, dams, utility systems, and in shipyards and mills.

Employers look for strong, ambitious young men with some training in mechanics. The outlook for employment in these jobs is brightened by the large amount of road and building construction to be expected for many years. Earnings in these occupations range from $75 to $100 weekly.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	.22
Construction	53.39
Manufacturing	30.74
Transportation, Communication, and Utilities	11.10
Wholesale and Retail Trade	2.78
Finance, Insurance, and Real Estate	.22
Business and Repair Services	.11
Personal Services	—
Professional and Related Services	—
Government Services (n.e.c.)	1.44
	100.00

For further information see:

500 Post War Jobs For Men by Lura Robinson. Doubleday, Doran, New York, 1945.

Government Jobs and How to Get Them by S. D. Spero. J. B. Lippincott Co., Philadelphia, 1945.

Dictionary of Occupational Titles, U. S. Employment Service. U. S. Government Printing Office, Washington, D.C., 1939.

STRUCTURAL AND ORNAMENTAL METAL WORKERS 4-84.

United States employment in 1940—27,080
San Francisco employment in 1947— 801

Structural metal workers set up the steel frames for bridges, buildings, ships, dams, etc. They work as a crew, guiding, placing, setting, leveling, riveting, and welding the network of steel beams together. The ornamental metal workers make and install various kinds of iron grilles, ornaments, stairways, and other non-structural metal decorations. Some of them work in the shop and others out on the building site.

The structural iron worker learns on the job during an apprenticeship of two years. If he knows mathematics, blueprint reading, and strength of materials, his opportunities for advancement are improved. The ornamental-bronze and ornamental-iron worker serves an apprenticeship of four years, and will do well to acquire a broad education in art, mathematics, mechanical drawing, and the use of shop tools. Monthly earnings range from $350 to $450 currently in San Francisco, and the outlook is for increased employment as long as general building and remodeling continues at a high level.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	26.59
Manufacturing	71.79
Transportation, Communication, and Utilities	1.25
Wholesale and Retail Trade	.12
Finance, Insurance, and Real Estate	—
Business and Repair Services	.13
Personal Services	—
Professional and Related Services	—
Government Services (n.e.c.)	.12
	100.00

For further information see:

Outdoor Jobs For Men by Lura Robinson. The Vanguard Press, New York, 1947.

Vocations For Boys by Kitson and Lingenfelter. Harcourt, Brace, New York, 1942.

TAILORS AND FURRIERS 4-26. and 4-21.

United States employment in 1940—107,180
San Francisco employment in 1947— 2,272

Tailors and furriers are difficult to count because of the problem of separating factory operatives from all-around journeymen in custom shops. The all-around journeyman tailor makes tailored garments, suits, coats, and dress clothes. He measures the customer, prepares patterns, and finishes the garment, often overseeing other workers, such as the bushelmen who work for him. The furriers also are all-around journeymen who perform all the operations included in turning out a complete garment.

Apprenticeship in these crafts lasts four years. Trade school training after high school is helpful to the beginner, who must be careful, accurate, and must have good eyesight. This is a basic industry, and openings will continue to develop.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	12.59
Transportation, Communication, and Utilities	—
Wholesale and Retail Trade	85.12
Finance, Insurance, and Real Estate	—
Business and Repair Services	—
Personal Services	2.11
Professional and Related Services	.13
Government Services (n.e.c.)	.05
	100.00

There may be a shortage of tailors because the general age level of present workers is high. Earnings begin at a minimum of $60 weekly in this area; the average is much higher. About fifteen per cent of tailors and furriers are women.

For further information see:

500 Post War Jobs For Men by Lura Robinson. Doubleday, Doran, New York, 1945.

Dictionary of Occupational Titles: Part I—see "Tailor," and "Furrier." Part II—see "4-21" and "4-26."

OTHER CRAFTSMEN AND KINDRED WORKERS

United States employment in 1940—205,180
San Francisco employment in 1947— 3,497

Among the Other Craftsmen and Kindred Workers thus classified by the census are upholsterers, jewelers, watchmakers, piano and organ tuners, window trimmers, decorators, millers, lense grinders and opticians, annealers and heat treaters.

These craftsmen, too, have begun as helpers or apprentices after appropriate education and training. Upholsterers have an apprenticeship of three years, two to four years for jewelers, three and a half years for watchmakers, four years for clock repairmen, four years for piano tuners, and three years for opticians.

In general, the proportion of workers classified in this group has been increasing. There are undoubtedly some emerging crafts buried in this "catch-all" group in each census; some of them become established and populous enough to appear by title in the succeeding census listing.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	.06
Mining	.03
Construction	2.77
Manufacturing	31.64
Transportation, Communication, and Utilities	1.54
Wholesale and Retail Trade	35.58
Finance, Insurance, and Real Estate	.69
Business and Repair Services	24.97
Personal Services	1.03
Professional and Related Services	1.32
Government Services (n.e.c.)	.37
	100.00

For further information see:

New Careers in Industry, J. M. Amiss and E. Sherman. McGraw-Hill, New York, 1946.

Job Guide by S. H. Kasper. Public Affairs Press, 1945.

OPERATIVES AND KINDRED WORKERS

United States employment in 1940—8,263,740
San Francisco employment in 1947— 70,620

In the words of the 1940 Census, "an operative or kindred worker is one engaged in a manual pursuit, usually routine, for the pursuance of which only a short period or no period of preliminary training is usually necessary, and which in its pursuance usually calls for the exercise of only a moderate degree of judgment or of manual dexterity, and which usually calls for the expenditure of only a moderate degree of muscular force."

It is important to remember that apprentices are included in this category, although their training will normally lead them to craftsman's status. The great bulk of operatives are the machine-tenders and helpers and assistants in shops, on construction jobs, in factories, and in assembling plants. Usually these jobs consist of routine activities requiring only limited ability, and seldom do they lead to higher-level occupations. As industry mechanizes and simplifies the tasks involved in manufacture and production, jobs are broken down into relatively simple tasks that can be performed with little training under the watchful eye of a foreman or "set-up" man.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	.05
Mining	.23
Construction	2.03
Manufacturing	38.18
Transportation, Communication, and Utilities	28.37
Wholesale and Retail Trade	18.75
Finance, Insurance, and Real Estate	.13
Business and Repair Services	2.19
Personal Services	7.57
Professional and Related Services	1.46
Government Services (n.e.c.)	1.04
	100.00

In the nation as a whole, Operatives and Kindred Workers are the most numerous class of worker, but in San Francisco they are far exceeded by the number of Clerical, Sales, and Kindred Workers.

ATTENDANTS, FILLING STATION AND PARKING LOT 7-60.

United States employment in 1940—209,720
San Francisco employment in 1947— 1,335

Service station attendants perform service as directed by customers, such as delivering gasoline, oil, water, checking tires, lubricating the automobile chassis, etc. They also act as salesmen in promoting the sale and installation of batteries, tires, and other automobile accessories. The work is performed in the open or under canopies, sometimes exposing operating personnel to inclement weather. Parking lot attendants park customers' cars or assist customers to park them themselves, and return the car to the customer upon presentation of a receipt.

In these jobs very litle preparation is required; most of the training is done on the job. Major oil companies usually have a two-week training period for entry workers.

Earnings average about $52 weekly. Employment opportunities are only fair at present in this field, and promotion to station manager is slow. There is some opportunity to earn commissions by selling accessories.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	.22
Transportation, Communication, and Utilities	2.77
Wholesale and Retail Trade	83.90
Finance, Insurance, and Real Estate	—
Business and Repair Services	12.28
Personal Services	.30
Professional and Related Services	.08
Government Services (n.e.c.)	.45
	100.00

For further information see:

Outdoor Jobs For Men by Lura Robinson. The Vanguard Press, New York, 1947.

Students and Occupations by E. G. Williamson. Henry Holt, New York, 1937.

BRAKEMEN AND SWITCHMEN 5-38., 7-38., and 5-44.

United States employment in 1940—107,220
San Francisco employment in 1947— 398

A brakeman assists in loading and unloading passengers, guards the rear of the train when it stops, and assists the conductor in the proper management of the train and its cars. The switchman assists in switching cars in the yard and in breaking up and making up trains according to train orders.

Educational requirements are not high for this work. Good health and coordination are essential. As a brakeman works up through yard switching and yard braking, through freight work to a pasenger run, he will be called upon to assume the additional responsibility of providing information and service to passengers. Promotion leads to the position of conductor. Brakemen are paid $11 or $12 a day for yard work, and more for long runs. Switchmen receive about $55 to $60 weekly.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	4.27
Transportation, Communication, and Utilities	95.73
Wholesale and Retail Trade	—
Finance, Insurance, and Real Estate	—
Business and Repair Services	—
Personal Services	—
Professional and Related Services	—
Government Services (n.e.c.)	—
	100.00

For further information see:

Everyday Occupations by M. A. Davey, E. M. Smith, and T. R. Myers. D. C. Heath and Co., Boston, 1941.

Outdoor Jobs For Men by Lura Robinson. The Vanguard Press, New York, 1947.

Students and Occupations by E. G. Williamson. Henry Holt, New York, 1937.

CHAUFFEURS, TRUCKDRIVERS AND DELIVERYMEN

5-36., 7-36., and 7-37.

United States employment in 1940—1,496,040

San Francisco employment in 1947— 20,308

Chauffeurs include cab drivers, drivers in personal service, and drivers of delivery vehicles. Truck drivers are listed in various industry columns according to the nature of the firm which employs them. Deliverymen are scattered throughout the industries, but are most common in Wholesale and Retail Trade. Deliverymen are often driver-salesmen who deliver laundry or food products. Delivery drivers frequently receive a commission on the business they secure for the company.

Drivers must be skillful in the handling of the vehicle, and must know and observe the rules and regulations of the communities in which they drive. A clean accident record, plus excellent health and strength are important. High school training in the making of minor repairs to vehicles is of great help. Drivers often are required to perform simple clerical routines in connection with the vehicle and goods delivered. Cab and bus drivers must be able to meet the public in a courteous manner. This is an expanding industry and the employment possibilities should be good. Character, dependability, and some maturity are desired by hiring companies.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	.09
Mining	.03
Construction	4.02
Manufacturing	11.09
Transportation, Communication, and Utilities	45.70
Wholesale and Retail Trade	30.03
Finance, Insurance, and Real Estate	.09
Business and Repair Services	.65
Personal Services	5.46
Professional and Related Services	.73
Government Services (n.e.c.)	2.11
	100.00

Earnings vary widely. Truck drivers receive from $55 to $75 a week, depending on the size of the truck. Helpers may begin at $55 a week. Deliverymen earn from $55 to $65 weekly, and bus drivers about $60. All these wages are minimum, and the safe, sure efficient man often earns much more.

For further information see:

Outdoor Jobs For Men by Lura Robinson. The Vanguard Press, New York, 1947.

Students and Occupations by E. G. Williamson. Henry Holt, New York, 1937.

CONDUCTORS AND MOTORMEN 5-39. and 5-43.

United States employment in 1940—16,220
San Francisco employment in 1947— 1,962

The conductors and motormen listed here are those operating street railway cars. Bus drivers are classified as chauffeurs. Conductors and motormen have routine duties in which the ability to get along with people and to follow regulations is important. The requirements of the work are learned after employment, in training programs consisting of classes and on-the-job instruction from the supervising personnel.

For the last decade this has been a declining occupation. In San Francisco the actual number of conductors and motormen has decreased as population increased. Wider use of private automobiles and the substitution of the one-man bus for streetcars are the principal reasons for the decrease in the number of conductors and motormen.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	—
Transportation, Communication, and Utilities	100.00
Wholesale and Retail Trade	—
Finance, Insurance, and Real Estate	—
Business and Repair Services	—
Personal Services	—
Professional and Related Services	—
Government Services (n.e.c.)	—
	100.00

Entry to this occupation in San Francisco is through civil service examination. Promotion leads to dispatcher, instructor, inspector, etc. In 1947, motormen and conductors were earning $1.368 per hour.

For further information see:

Periodic Announcements, San Francisco Civil Service Commission.

Outdoor Jobs For Men by Lura Robinson. The Vanguard Press, New York, 1947.

DRESSMAKERS AND SEAMSTRESSES 4-25. and 6-25.

United States employment in 1940—137,340
San Francisco employment in 1947— 2,268

Of the 137,340 workers listed in the 1940 Census, 2,700 were men. Dressmakers and seamstresses make and assemble garments, dresses, and coats; they sometimes cut out the parts, too. They differ from tailors in that they do not supervise the work of others, and ordinarily do not create a pattern directly for a customer. They may work in the alteration department of a store or in their own home, a fact which makes it difficult to count them. Almost any worker who follows the needle trades outside a factory is classified in this occupation. Example of such workers are carpet sewers, glove repairers, and menders in laundries.

Training for this occupation may be learned on the job, or more frequently in a vocational school. A good general education, plus training in art, sewing, and costume design is important. When times are good these workers are in demand. Earnings of alteration hands, fitters, and seamstresses in department stores begin at about $40 a week, but much more can be earned by the competent worker.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	—
Transportation, Communication, and Utilities	—
Wholesale and Retail Trade	54.89
Finance, Insurance, and Real Estate	—
Business and Repair Services	.09
Personal Services	42.20
Professional and Related Services	2.78
Government Services (n.e.c.)	.04
	100.00

For further information see:

Vocations For Girls by M. R. Lingenfelter and H. D. Kitson. Harcourt, Brace, New York, 1939.

Students and Occupations by E. G. Williamson. Henry Holt, New York, 1937.

FIREMEN 7-70.

United States employment in 1940—113,820
San Francisco employment in 1947— 1,224

This caption excludes firemen in a fire department or on a steam locomotive. Counted here are those firemen who tend low pressure boilers for supplying heat in factories or apartment houses, and those operating high pressure boilers to supply energy for turbines, reciprocating engines, and other steam-operated engines.

Such men must have a knowledge of the basic principles of power and machines. Ability to read blueprints and to effect minor repairs is important. Firemen are employed by factories, apartment houses, and public utility companies; they work on pile drivers, in power houses, on construction machinery, etc. The increased use of diesel power may cut into employment prospects for firemen who operate steam installations. Earnings in this field range from $200 to $250 monthly. Promotion leads to Stationary Engineer.

Industrial Distribution of These Workers

	PER CENT
Agriculture, Forestry, and Fishing	.08
Mining	.08
Construction	1.23
Manufacturing	25.74
Transportation, Communication, and Utilities	52.38
Wholesale and Retail Trade	2.62
Finance, Insurance, and Real Estate	2.79
Business and Repair Services	.08
Personal Services	3.69
Professional and Related Services	5.41
Government Services (n.e.c.)	5.90
	100.00

For further information see:

Outdoor Jobs For Men, Lura Robinson. The Vanguard Press, New York, 1947.

Students and Occupations, E. G. Williamson. Henry Holt, New York, 1937.

500 Post War Jobs For Men, Lura Robinson. Doubleday, Doran, New York, 1945.

LAUNDRY OPERATIVES 5-57 and 7-57

United States employment in 1940—216,740
San Francisco employment in 1947— 2,503

The workers included in this category are those operatives employed in power or hand laundries; some of the occupational titles are bundle wrapper, checker, clothes marker, collar starcher, distributor, dry cleaner, finisher, flat ironer, machine ironer, mangler, shaker, starcher, washer, etc.

These are comparatively simple jobs with training received on the job in most cases. The operative usually begins as a helper and works up. Power laundries declined in the past ten years, and employment prospects are not bright. Earnings vary with the type of work. For example, the head washer, a man, may receive $1.50 an hour; the steam mangle operator, a woman, may get eighty-two cents an hour; markers and distributors earn $1.05 an hour. About seventy-five per cent of laundry operatives are women.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	3.24
Transportation, Communication, and Utilities	.16
Wholesale and Retail Trade	.16
Finance, Insurance, and Real Estate	—
Business and Repair Services	—
Personal Services	88.85
Professional and Related Services	7.31
Government Services (n.e.c.)	.28
	100.00

LINEMEN AND SERVICEMEN 5-53. and 7-53.

United States employment in 1940—105,920
San Francisco employment in 1947— 1,552

About eighty-one per cent of these workers in San Francisco are employed by telephone and telegraph companies. Some work for the municipal railway and for the power company. The lineman hangs wires on poles, erects and maintains equipment such as transformers and insulators. The serviceman installs telephones and meters, makes connections for new service, and assists customers in the use of equipment.

These jobs require strength and agility along with accuracy and care in the handling of equipment. A basic knowledge of electricity and science is of great help. Most of these workers are employed by large companies with established personnel policies designed to encourage able workers to qualify for promotion. Training usually is provided by the employer, after which a man joins an experienced crew in helper's status. Untrained men may start at $38 a week; raises and promotions come soon for able, industrious workers.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	1.35
Manufacturing	—
Transportation, Communication, and Utilities	97.74
Wholesale and Retail Trade	.07
Finance, Insurance, and Real Estate	—
Business and Repair Services	.19
Personal Services	—
Professional and Related Services	—
Government Services (n.e.c.)	.65
	100.00

For further information see:

500 Post War Jobs For Men by Lura Robinson. Doubleday, Doran, New York, 1945.

Outdoor Jobs For Men by Lura Robinson. The Vanguard Press, New York, 1947.

PAINTERS 5-16. and 7-16.

United States employment in 1940—80,340
San Francisco employment in 1947— 559

Construction and maintenance painters are classified as Craftsmen rather than as Operatives. This title includes the factory painters, those who dip, use spray guns, or brush paint on fabricated articles such as machinery, furniture, automobiles, railroad cars, picture frames, etc.

The little training required for this work usually is given on the job. In large plants, the jobs are divided and simplified. Mixing paint, spraying paint, lacquering, and enameling become separate tasks at which the worker can specialize. Entry to the occupation is through the helper status. Earnings usually range from $40 to $80 weekly.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	.36
Manuaftcuring	58.67
Transportation, Communication, and Utilities	2.50
Wholesale and Retail Trade	15.03
Finance, Insurance, and Real Estate	—
Business and Repair Services	22.90
Personal Services	.36
Professional and Related Services	—
Government Services (n.e.c.)	.18
	100.00

For further information see:

Students and Occupations by E. G. Williamson. Henry Holt, New York, 1937.

Everyday Occupations by M. A. Davey, E. M. Smith, and T. R. Myers. D. C. Heath Co., Boston, 1941.

POWER STATION OPERATORS 5-51.

United States employment in 1940—20,260
San Francisco employment in 1947— 118

The census includes in this caption chief operators, dispatchers, dynamo men, electric operators, and switchboard operators, all of whom have related duties in the operation of a power house or substation. Such workers are employed by public utility companies and street railways. They may be employed in power stations where power is produced, or in substations where switching and distribution of power takes place.

Men in this work must be in good physical condition and show habits of accuracy and dependability. A general knowledge of circuits, electricity, operation of equipment, and fundamentals of circuit testing is important.

With the great expansion in electric power planned for the next few years, employment prospects should be good. Earnings range from $12.40 to $14 a day for head operators and from $10.52 to $12.40 for assistant operators.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	—
Transportation, Communication, and Utilities	98.31
Wholesale and Retail Trade	—
Finance, Insurance, and Real Estate	—
Business and Repair Services	—
Personal Services	.84
Professional and Related Services	—
Government Services (n.e.c.)	.85
	100.00

For further information see:

500 Post War Jobs For Men by Lura Robinson. Doubleday, Doran, New York, 1945.

Occupational Outlook Information, V. A. Manual M 7-1 and supplements Government Printing Office, Washington, D.C., 1946.

WELDERS AND FLAME CUTTERS 4-85. and 6-85.

United States employment in 1940—121,380
San Francisco employment in 1947— 1,434

Welders fuse metal parts together by using the intense heat of electric arcs or gas flames. Welding is done for fabricating metal parts or repairing broken or cracked metal parts. The all-around welder, with complete training, can operate either electric arc or gas equipment and can make various welds such as horizontal, vertical, overhead, and flat welds. The flame cutter uses oxy-acetylene burning equipment to perform metal-cutting operations to pattern or specifications.

Welders and flame cutters frequently must pass an examination on this work when applying for jobs. They must have training in reading blueprints, must have knowledge of metals, and must have good sight and health. Vocational school or trade school training is very helpful. Welders begin as helpers and qualify for promotion on the job. This is probably an expanding occupation, since new uses for welding are being found in many industrial processes. Competition for these jobs may be keen because of the large number of welders trained during the war. They earn about $1.65 hourly.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	.07
Construction	3.14
Manufacturing	78.44
Transportation, Communication, and Utilities	6.35
Wholesale and Retail Trade	1.60
Finance, Insurance, and Real Estate	—
Business and Repair Services	10.05
Personal Services	—
Professional and Related Services	.07
Government Services (n.e.c.)	.28
	100.00

For further information see:

500 Post War Jobs for Men by Lura Robinson. Doubleday, Doran, New York, 1945.

Occupational Outlook Information, V. A. Manual M 7-1 and supplements. Government Printing Office, Washington, D.C., 1946.

OTHER OPERATIVES

United States employment in 1940—4,825,540
San Francisco employment in 1947— 36,959

These Other Operatives, not elsewhere specified, are an important segment of the workers in our modern industrial organization. The majority of them are pursuing routine occupations that frequently do not lead to higher levels of skill or earnings. Exceptions to this are the apprentices and helpers listed in this caption by the census. Most of the apprentices and many of the helpers are classified as Operatives while they are in training to become Craftsmen.

Those who operate the machines and perform the relatively simple routine tasks of industry may be suggested by the titles listed below:

machine operators
pressers
animal keepers
vermin exterminators
bill posters
vulcanizers
testers and inspectors
sorters and graders
riggers
mixers
finishers
labelers
stage hands
book menders
scissors grinders
helpers and apprentices
assemblers
packers and craters
bench hands
box makers
polishers
repairers

Industrial Distribution of These Workers

	PER CENT
Agriculture, Forestry, and Fishing	.04
Mining	.41
Construction	1.44
Manufacturing	61.80
Transportation, Communication, and Utilities	16.23
Wholesale and Retail Trade	12.55
Finance, Insurance, and Real Estate	.11
Business and Repair Services	2.63
Personal Services	2.70
Professional and Related Services	1.53
Government Services (n.e.c.)	.56
	100.00

Operatives as a group are closely related to and dependent upon the manufacturing activities of the community. If great technological change occurs in a specific industrial manufacturing process, one may expect shifts in the nature of the skills required of operatives employed in that industry and area.

PROTECTIVE SERVICE 2-61. through 2-68.

United States employment in 1940—459,080
San Francisco employment in 1947— 9,539

The 1940 Census reports Protective Service Workers as "workers who are engaged in protecting life or property. The group includes such workers as city firemen, guards, watchmen, detectives, soldiers, and law enforcing officers." In this study, where numbers are reported for protective service, all military personnel have been excluded.

Policemen and law enforcement officers employed by municipal and state governments have been increasing in recent census tabulations. In San Francisco there are about 1,100 policemen who were appointed to the force after having passed competitive civil service examinations. To be eligible for appointment, the applicant must be a high school graduate capable of meeting certain physical and age requirements. Beginning salaries range from $260 to $290 monthly according to duties performed. State and national law enforcement officers receive comparable salaries. A few women are employed as jail matrons and bailiffs.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	.07
Mining	.03
Construction	.58
Manufacturing	4.50
Transportation, Communication, and Utilities	9.82
Wholesale and Retail Trade	2.79
Finance, Insurance, and Real Estate	3.81
Business and Repair Services	3.54
Personal Services	.68
Professional and Related Services	1.39
Government Services (n.e.c.)	72.79
	100.00

The number of firemen also has been increasing on a national scale slightly faster than the population has increased. San Francisco had 1,202 firemen in 1947. Civil service examinations, high school graduation, and physical fitness are required of them also. No women are employed in this field. Beginning salaries range from $260 to $290 monthly depending upon the assignment.

Doorkeepers, guards, and watchmen also showed a national increase in numbers since 1930. Although government is the largest single employer of protective service workers, almost every industry hires some. Business Services employed 319 guards and watchmen in 1947. Watchmen and store detectives appear in the industry heading General Merchandise and Variety Stores; dock watchmen and guards are indicated in Water Transport. Educational requirements for this occupation are relatively unimportant; character and reliability are the prime considerations.

For further information see:

Government Jobs and How to Get Them by Sterling G. Spero. J. B. Lippincott Co., Philadelphia, 1945.

Everyday Occupations by Davey, Smith, and Myers. D. C. Heath and Co., Boston, 1941.

SERVICE WORKERS 2-01. through 2-48. and 2-80. through 2-95.

United States employment in 1940—4,888,320
San Francisco employment in 1947— 57,398

In this category are combined general personal service workers and domestic service workers. The 1940 Census defines them as "A domestic service worker is one engaged in a personal service pursuit in a private home. Housekeepers, laundresses, and servants, in private families, comprise this group. A service worker, except domestic and protective, is (1) one who is engaged in cleaning and janitor services in buildings other than private homes—such as charwoman, janitor, or porter; or (2) one who is performing services, often of an individual character, for other persons, such as a barber, cook, waitress, practical nurse, or usher."

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	.01
Mining	—
Construction	.15
Manufacturing	1.15
Transportation, Communication, and Utilities	4.85
Wholesale and Retail Trade	35.91
Finance, Insurance, and Real Estate	8.29
Business and Repair Services	1.20
Personal Services	38.28
Professional and Related Services	8.33
Government Services (n.e.c.)	1.83
	100.00

About five in every hundred male workers and about twenty-eight in every hundred female workers are engaged in service pursuits. According to Anderson and Davidson in their *Recent Occupational Trends in American Labor,* "The number of service workers has increased in every census count since 1870." Although the people of the United States are using fewer domestic servants, they are using commercial personal service outside the home more and more.

For further information see:

Recent Occupational Trends in American Labor by D. Anderson and P. E. Davidson. Stanford University Press, Stanford, California, 1945.

BARBERS, BEAUTICIANS, AND MANICURISTS 2-32.

United States employment in 1940—419,600
San Francisco employment in 1947— 3,730

Barbers cut hair, shave, shampoo, and give massages. They are skillful in the use of scissors, clippers, and razors. Beauty operator is a general term applied to any worker in a beauty shop, such as a facial operator, hair dresser, or manicurist. They cut, trim, and shampoo the hair, give permanent waves, and perform other specialized services for customers. Most students do not limit themselves to the manicurist's license, but by additional training earn the beautician's license, which permits them to perform all the services commonly found in a beauty shop.

Barbers and beauticians must be graduates of the eighth grade, must complete a course in a barber college or a beauty college, and must pass a state examination in order to obtain a license. Apprenticeships usually last two and one half years. The number of people employed in this occupation has been increasing for several decades; the increase has been among women, while the number of men in this work has decreased. Earnings for barbers are based on a minimum of $45 a week, plus a per cent of the gross receipts. Beauticians receive $35 a week plus commissions.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	—
Manufacturing	—
Transportation, Communication, and Utilities	.21
Wholesale and Retail Trade	1.47
Finance, Insurance, and Real Estate	.11
Business and Repair Services	.03
Personal Services	97.67
Professional and Related Services	.35
Government Services (n.e.c.)	.16
	100.00

For further information see:

Vocations For Girls by M. R. Lingenfelter and H. D. Kitson. Harcourt, Brace, New York, 1939.

Profitable Beauty Shop Management by S. B. Jeffries. Prentice-Hall, New York, 1940.

COOKS 2-26.

United States employment in 1940—277,000
San Francisco employment in 1947— 4,762

A cook prepares, seasons, and cooks by various methods meats, soups, deserts, vegetables, sauces, gravies, etc. Cooks are variously known as chef, second cook, roast cook, fry cook, breakfast cook, vegetable cook, pastry chef, broiler station cook, etc. The all-around journeyman cook can perform all functions relating to the preparation of food.

Cooks must serve an apprenticeship of twenty-four months, and must have experience in all departments of a large establishment. In modern times, many cooks finish high school and attend a college or technical school for vocational training. Frequently some credit is given toward the satisfaction of apprenticeship requirements for time spent in vocational school.

The employment outlook for cooks is good. Promotion leads to head cook or chef. From $60 to $80 a week is the usual minimum wage, but capable chefs earn much more.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	.10
Mining	—
Construction	.55
Manufacturing	.25
Transportation, Communication, and Utilities	13.32
Wholesale and Retail Trade	65.50
Finance, Insurance, and Real Estate	.13
Business and Repair Services	—
Personal Services	12.44
Professional and Related Services	6.55
Government Services (n.e.c.)	1.16
	100.00

For further information see:

Everyday Occupations by M. A. Davey, E. M. Smith, and T. R. Meyers. D. C. Heath and Co., Boston, 1941.

Government Jobs and How To Get Them by S. D. Spero. J. B. Lippincott Co., Philadelphia, 1945.

ELEVATOR OPERATORS 2-95.

United States employment in 1940—75,820
San Francisco employment in 1947— 1,507

Elevator operators move passengers and freight between floors in an office, hotel, apartment, department store building, or other building. They operate control levers, call floors, give information, and may sometimes distribute mail or perform other services.

In general, elevator operators require little training. They are sometimes called upon to perform janitorial work, especially in apartment buildings. Numbers in this occupation in San Francisco have declined in the past eight or ten years. The best paid elevator operators are those employed in office and store buildings. These operators earn approximately a dollar an hour. Lodging is sometimes provided as a part of the wages. It was the opinion of the people interviewed that this is a dead-end job, with most positions filled by elderly persons.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	.20
Manufacturing	3.08
Transportation, Communication, and Utilities	2.94
Wholesale and Retail Trade	10.70
Finance, Insurance, and Real Estate	65.22
Business and Repair Services	.13
Personal Services	10.23
Professional and Related Services	2.28
Government Services (n.e.c.)	5.22
	100.00

JANITORS, PORTERS, AND CLEANERS 2-82. through 2-92.

United States employment in 1940—583,240
San Francisco employment in 1947— 9,296

Janitors, porters, charwomen, and cleaners are those workers who sweep, clean, polish, and look after the cleanliness and appearance of buildings. They may clean windows, polish brass, clean corridors and basements, polish floors, vacuum and clean carpets, empty ash trays, clean offices, tend the furnace, etc. Pullman porters also are included under this caption.

In the last census decade the number of such workers showed a definite increase. Many of these workers receive room or lodging as a part of their wages. Industrial janitors receive $1.25 an hour, office janitors $1.08, and janitresses less.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	.01
Mining	.01
Construction	.30
Manufacturing	5.30
Transportation, Communication, and Utilities	7.68
Wholesale and Retail Trade	15.53
Finance, Insurance, and Real Estate	35.21
Business and Repair Services	7.12
Personal Services	7.98
Professional and Related Services	13.15
Government Services (n.e.c.)	7.71
	100.00

For further information see:

Government Jobs and How To Get Them by S. D. Spero. J. B. Lippincott Company, Philadelphia, 1945.

PRACTICAL NURSES 2-38.

United States employment in 1940—88,200
San Francisco employment in 1947— 472

Practical nurses are those who have secured a knowledge of nursing primarily through practical experience. They usually attend infants, bedridden, convalescent, aged or mental patients. Practical Nurses read to patients, accompany them on walks or rides, assist them at meals, and in other ways attempt to make the patients comfortable.

Persons rarely prepare for this occupation, but may take it up because of special interests and personal qualities which make them desirable attendants. Circumstances have directed others into this work. The work a practical nurse may perform is regulated by law.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	.64
Manufacturing	2.12
Transportation, Communication, and Utilities	1.27
Wholesale and Retail Trade	.21
Finance, Insurance, and Real Estate	.42
Business and Repair Services	—
Personal Services	76.27
Professional and Related Services	18.22
Government Services (n.e.c.)	.85
	100.00

For further information see:

Textbook of Practical Nursing by K. O. Brownell. Saunders, Philadelphia, 1939.

WAITERS, WAITRESSES, AND BARTENDERS 2-27, and 2-21.

United States employment in 1940—645,580
San Francisco employment in 1947— 14,141

Waiters and waitresses seat customers, assist in the selection of foods, serve foods, remove dirty dishes, and collect from customers. Bartenders mix drinks and serve liquor according to requests of customers. They must clean glasses, and maintain a neat and clean bar.

A bus boy or bus girl may act as helper in assisting a waiter, and in this way learn the duties, gain experience, and in time become a regular waiter. Bartenders sometimes attend a school to learn the trade. Earnings are about six dollars a day for waiters, plus tips, and twelve or fourteen dollars a day for bartenders. Promotion may lead to waiter captain or head waiter, a formal position of great responsibility in a large hotel or fine restaurant.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	.06
Manufacturing	.06
Transportation, Communication, and Utilities	3.32
Wholesale and Retail Trade	86.97
Finance, Insurance, and Real Estate	.30
Business and Repair Services	.01
Personal Services	7.16
Professional and Related Services	2.06
Government Services (n.e.c.)	.06
	100.00

For further information see:

Occupational Briefs by Science Research Associates, current issues.

OTHER SERVICE WORKERS

United States employment in 1940—2,797,880
San Francisco employment in 1947— 23,490

Other Service Workers is a broad title used here to include service workers not heretofore discussed in this report. Domestic Service Workers also have been placed in this occupational classification. Some of the common occupational designations are listed as a suggestion of the composition of this group:

day workers
laundresses, private family
housekeepers, private family
yardmen and housemen
boarding-house keepers
stewards
hostesses
dishwashers
guides, hunting and fishing
recreation attendants
ushers
sextons
cooks, domestic
maids and butlers
nursemaids
bell boys
valets
bus boys and bus girls
kitchen helpers
bootblacks
doormen
hospital orderlies
funeral attendants
models for artists and painters

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	—
Mining	—
Construction	.06
Manufacturing	.38
Transportation, Communication, and Utilities	3.87
Wholesale and Retail Trade	14.99
Finance, Insurance, and Real Estate	1.97
Business and Repair Services	.11
Personal Services	65.81
Professional and Related Services	12.03
Government Services (n.e.c.)	.78
	100.00

This group of workers has increased numerically, with commercial service workers outside the home leading the increase, while the number of domestic service workers in the home has decreased. In boom times workers leave many of these jobs for work with more pay and more regular hours, returning in depression times to this sort of work.

LABORERS

United States employment in 1940—3,074,320
San Francisco employment in 1947— 27,925

As defined in the census, "a laborer is a worker engaged in a manual pursuit, usually routine, for the performance of which no special training, judgment, or manual dexterity ordinarily is necessary, and in which the worker usually supplies mainly muscular strength for the performance of coarse, heavy work." In San Francisco in 1947, of the 27,925 laborers listed, probably only two to three per cent were women. In general, in the past, unskilled labor has been supplied in this country by immigrants from foreign lands. Much of the unskilled labor in cities has been provided by migrants from rural to urban areas who came in search of work. It is obvious that there are almost no educational requirements for this type of work.

INDUSTRIAL DISTRIBUTION OF THESE WORKERS

	PER CENT
Agriculture, Forestry, and Fishing	4.42
Mining	.04
Construction	7.84
Manufacturing	20.98
Transportation, Communication, and Utilities	42.57
Wholesale and Retail Trade	13.73
Finance, Insurance, and Real Estate	.72
Business and Repair Services	1.62
Personal Services	.82
Professional and Related Services	1.95
Government Services (n.e.c.)	5.31
	100.00

No attempt will be made here to analyze the characteristics of the labor force in each of the industries reported upon in this study. Some comments, however, can be made about certain special unskilled labor groups in San Francisco. The largest single group of laborers is composed of stevedores and longshoremen, reported in the column on Water Transportation. This occupation has been on the increase nationally since 1930. Because the work is irregular and somewhat seasonal, a count made during any particular week may be inaccurate.

The next two groups in point of size, those found in Wholesale Trade and in Trucking and Warehousing, are difficult to separate. They do, however, constitute a group of approximately five thousand laborers in a peculiarly favored position. Many of them are warehousemen and teamsters, highly organized and receiving fairly steady work throughout the year.

Two other large industries, Construction and Shipbuilding are important users of unskilled labor. The seasonal character of these two industries produces some basic insecurity in the jobs held by these workers. Since there are almost no requirement for entry into this occupation, these workers are subject to more severe competition than are the workers in other occupations. As seasonal trends tend to force the layoff of workers in one or another industry, those laborers then compete for the few remaining jobs in other industries. In 1947, in San Francisco, laborers were paid approximately $1 an hour.

Chapter VI

Industrial and Occupational Trends in San Francisco

Some may think it rash to attempt a projection of occupational trends into the future, but we feel that such an effort should be made on some logical basis by students of occupations. This chapter, therefore, will present a point of view relative to the problem, suggest a method of attack, and propose a tentative forecast of the 1960 employment distribution by occupation in San Francisco.

The basic theory, not only of this investigation but also of the Robinson-Swenson study, is that in a particular community each industry has an occupational pattern peculiarly its own. Further, we believe that the occupational pattern of a community is directly related to the industrial pattern of that community. It seems logical to assume that carpenters, painters, and plumbers will be found much more frequently in communities with a large and healthy construction industry than would be the case in a community which no longer is expanding its physical plant. True, these workers are found in other industries, but a large proportion of the total employment in these crafts is dependent on the health of the Construction industry.

Radical changes in the technology of an industry can affect the occupational distribution of workers within an industry. It is well to remember, however, that such changes are developmental and occur over a period of years. Possibilities of this sort must be considered in evaluating the method of forecasting.

If the thesis that occupational trends are related to industrial trends is accepted, then our attention should be directed toward the probable nature of changes to be expected in the industrial pattern of San Francisco's economic structure. There are several elements to be considered in attempting to project curves which for some future date show the proportion of those employed in a particular industry-group to total employment.

In attempting to estimate the future industrial distribution of employment we turned to Van Beuren Stanbery of the United States Department of Commerce who developed and suggested the method outlined in the following pages.

One of the principal elements is the long-term swing which is evident in the economic development of any community. In the pioneering stage of a community's development, its economic structure may be likened to that of a pyramid. (14)

1. The base of this pyramid is formed by *extraction activities,* which employ workers engaged in mining, agriculture, fishing, forestry, and other activities concerned with the extraction of raw materials. In the early pioneering stage of a community's development there usually are few tools wherewith to fabricate commodities, few commodities to distribute, and little surplus with which to buy the educational, medical, governmental, and other services which a more mature economy will demand.

2 The second level of the pyramid is formed by *conversion*

activities which engage workers in the fabrication into buildings, flour, clothing, etc., of the raw materials produced by the extractive group.

3. The third level of the pyramid includes the *distribution activities* which require, in the early stages of a community's development, a relatively small segment of the total employed. In a small, relatively self-contained economy, the major efforts of the workers are required for the production of materials and goods, and distribution frequently is carried on directly between the producer and the consumer.

4. The fourth level contains *service activities,* which constitute a very small portion of the employed force in a pioneer community. Man has struggled to provide for his basic needs for food, clothing, and shelter before turning his attention to providing for other needs. Fire, health, police protection, education, and entertainment are examples of services that usually are postponed until other needs have been met.

As the community grows in size and matures in its development, the relationships between these four fields of economic activities begin to change and the pyramid to alter its shape. The broad base of extraction activities tends to contract, relatively speaking, and the pyramidal shape gradually changes to a rectangular one, to emerge finally—in a fully matured economy wherein tools and technology have reached an advanced state of development—as an inverted pyramid. In this stage of later development extraction activities demand a relatively small portion of man's labor, conversion a somewhat larger portion, distribution a still greater portion, and finally—with many of the demands formerly made of men's muscles now being met by machines—a catering to mankind's demands for health services, educational services, entertainment, and other very real needs employing the largest group of all. This country has not yet seen the time when these latter needs have been satisfied.

This, then, is the long-term trend in man's activities which the study of economics tells us we may expect. It is obvious that San Francisco has not yet reached the final stage in the development of the inverted pyramid. It is equally obvious that we have made great strides in that direction. Just where, in the evolutionary development of the economic structure, we now stand cannot be stated, but the long-term trend is clear.

A second factor, and one related to the above, is the rate of the changes that are taking place. A hint of this sort can be secured by a study of census data on distribution of workers by industry in San Francisco over the past 28 years. If the number of workers reported by the census in each industry is related to the total number of workers at the time, we may determine the percentage of workers in San Francisco in 1920, 1930, 1940, and 1947 who were engaged in Mining; or Transportation, Communication, and Utilities; or Wholesale and Retail Trade; or any others of the 11 industry groups shown in Chart III.

A third factor influencing industrial trends in San Francisco is the geographical characteristics of the city. San Francisco is located at the end of a hilly peninsula which extends for many miles between the Pacific Ocean and

an arm of San Francisco Bay. The city occupies 49 square miles at the tip of that peninsula, and in it are concentrated upward of 785,000 residents and a bustling business community. Access to this business community has become a constantly greater problem as population has increased from 506,676 in 1920, to 634,394 in 1930, to 634,536 in 1940, and to an estimated 785,000 in 1947.

Because the geographical features limit the area which San Francisco can occupy, property values have increased many times as the struggle for proximity to the business center continues. These high property values have tended to nurture the development of the distribution function in San Francisco and at the same time to distribute new manufacturing industries to adjacent counties where the advantage of suburban factory conditions can be combined with that of a San Francisco distributing point.

If San Francisco were a city surrounded by relatively open country into which it could expand normally, unimpeded by water or other boundaries, there is a distinct possibility that its industrial development might have taken a different direction. But such boundaries do exist, and San Francisco has reacted to them and treated them as advantages by capitalizing on her waterborne traffic and all the financing and distributive services attendant on it. Whether or not these geographical factors have been advantageous to San Francisco, certainly they have played and will continue to play their part in affecting the industrial future of the city.

Any attempt to forecast industrial trends must take into account the possible effect of war, or the threat of war, upon the industrial framework of the city. We are all aware of the impact of the last war on this city's economy. San Francisco changed almost overnight from a city in which the distribution industries predominated to one in which every effort was centered on production—production of ships, repair of ships, manufacture of machine parts, construction of military facilities, and all types of production calculated to further the war effort. After 1944, the peak year of war production, the industrial pattern of San Francisco gradually began to resume its normal shape, and 1947 found it closely approximating the pattern of 1940. If we should have another war doubtless it would cause another such derangement in the industrial pattern of the city. If history continues to repeat itself, however, we might expect that, after the derangements caused by war have been overcome, the long trend of development would assert itself once more.

We have been warned, by those whose experience qualifies them to judge, that industrial trends cannot be predicted accurately beyond a period of two or three months. These short-term forecasts must be based upon a close study of all the factors involved in the current industrial situation—the volume of building permits, the seasonal demand for workers in different industries, the current labor situation, the future termination date of labor contracts, and many other factors which have local and immediate significance.

Long-term trends are less affected by such considerations. They are more responsive to such things as population shifts, modes of transportation, the changing characteristics of a maturing community, the depletion of natural resources, and other similar basic changes. Long-term and short-term trends may run in opposition to each other for short periods, but the sum of short-term changes must eventually approximate the long-term trend.

With these considerations in mind, let us attempt to chart the changes which have taken place in San Francisco's industrial pattern since 1920 and to venture a forecast of the industrial characteristics of the city in 1960.

The last three censuses differed somewhat in their industrial classifications, and some adjustment has been necessary in order to reconcile these differences. The methods of reconciliation were discussed with competent specialists in this field, and the data presented are believed to be statistically accurate. The reader should bear in mind, in reading the following table, that a decrease in a percentage does not necessarily mean a decrease in numbers.

Although the percentages in a particular industry may have decreased from year to year the number of workers in that industry actually may have increased.

TABLE 27

Trends in the Per Cent of Workers Employed in Various Industry-Groups from 1920 to 1947 and Projected to 1960

	PER CENT OF TOTAL EMPLOYMENT 1920	(22)	PER CENT OF TOTAL EMPLOYMENT 1930	(27)	PER CENT OF TOTAL EMPLOYMENT 1940	(5)	PER CENT OF TOTAL EMPLOYMENT 1947	(Chart III)	PER CENT OF TOTAL EMPLOYMENT 1960	(Est.)
Extraction		2.0		1.5		1.0		.49		.4
Agriculture, Forestry, and Fishing	1.5		1.0		.7		.36		.3	
Mining	.5		.5		.3		.13		.1	
Conversion		35.4		26.0		22.5		22.70		22.1
Construction	11.0		7.0		5.0		5.14		5.0	
Manufacturing	24.4		19.0		17.5		17.56		17.1	
Distribution		36.7		40.5		46.5		51.30		50.9
Finance, Insurance, and Real Estate	3.6		7.0		8.0		7.76		8.0	
Transportation, Communication, and Utilities	12.5		14.0		12.0		14.69		13.9	
Wholesale and Retail Trade	20.6		19.5		26.5		28.85		29.0	
Services		25.9		32.0		30.0		25.51		26.6
Business and Repair Service	N.A.		3.5		3.0		3.58		3.8	
Personal Services	14.4		15.5		11.0		7.28		7.5	
Professional Services	8.5		9.5		10.5		8.22		8.7	
Government Services (n.e.c.)	3.0		3.5		5.5		6.43		6.6	
		100%		100%		100%		100%		100%

The percentages computed in Table 27 for 1920, 1930, and 1940 are based on adjusted data from the censuses for those years. The data for 1947 are taken directly from the California State Employment Service estimate of employment in mid-1947 and repeat the percentages shown in the column-headings of Chart III. To arrive at the percentages shown for 1960 we plotted curves based upon the 1920, 1930, 1940, and 1947 percentages and projected them to 1960. Because of the ideas set forth early in this chapter these projections are more than mathematical extensions of the trend curves since considerations other than the purely mathematical are believed to have greater significance. In preparing these estimates, we are glad to acknowledge the advice and counsel we received from the same specialists we have mentioned so frequently, Van Beuren Stanbery of the United States Department of Commerce, Margaret Thal-Larsen of the California State Employment Service, and George Duggar of the San Francisco Department of City Planning.

This estimate of the proportionate distribution of employment-by-industry in 1960 provides a tool which may be used to develop a picture of employment-by-occupation at that time. The next step in this project is to attempt to fix the size of the employed group of workers in 1960.

We have already seen, in Chapter III, that 42.3 per cent in 1940 and 48.0 per cent in 1947 of the civilian population was employed. The year 1947 undoubtedly represents a period of high employment, and the 48.0 per cent employment probably is too high to be expected in 1960. It is reasonable to believe, however, that this proportion will not return to prewar proportions but will tend upward from the 42.3 per cent figure. Several considerations suggest this trend. The higher age at which individuals marry and the consequently longer period of employment prior to marriage, the great incidence of divorce and its resultant injection of women into the employment picture, the high frequency with which we find working wives in business, the decrease in size of the average family, the large number of apartment-house dwellers who desire work as an outside interest, the removal of many families with children to the suburbs and their replacement by family units with two or more wage earners—all these are factors contributing to a high proportion of workers to population. We have attempted to evaluate all these factors and have come to the conclusion that 46 per cent represents a reasonable estimate of the relationship of the employed force to the total civilian population. This process furnishes us with a second tool to be used in an attempt to derive an occupational distribution for 1960.

Finally, we must estimate what the size of the civilian population of San Francisco will be in 1960.

Estimating population is an activity in which everyone is an expert, and there is no general agreement on future figures or even concerning the size of the present civilian population of San Francisco. Part of the disagreement stems from failure to define terms in making estimates. The special census of San Francisco conducted in 1945 by the Bureau of the Census (35) fixed the resident civilian population at 767,647. The San Francisco Chamber of Commerce estimated the resident civilian population to be 794,000 on January 1, 1948. (2)

Other estimates have ranged between 750,000 and 800,000 for the 1947 civilian population of San Francisco. The estimate which our study has led

us to accept is the 785,000 figure which has been advanced by the California State Chamber of Commerce Research Department.

One careful study of population trends is that published by the State Reconstruction and Reemployment Commission in November, 1946. (13) This publication defines its terms carefully and then prepares estimates of population growth for each of 12 areas within the state. San Francisco is a part of Area Number 12, which is composed of the nine counties served by the Bay Area Council. These are Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties. The population trend for each area was graphed to 1946 and then projected to 1960. High and low limits of estimate were made for each area. In order to furnish similar estimates on a county rather than an area basis, the same ratio of growth was applied to each county within the area.

This method of calculating rate of county growth may be somewhat misleading in some cases for, as the same publication points out:

> "The county estimates for 1950 and 1960 are, of course, subject to a wider range of error than the estimates for the 12 areas or for the State as a whole because it is more difficult to determine the rate of future population increase in a small area than in a large one. A numerically small change from the estimated net in-migration might show a large percentage difference in a county of small population, while for its area as a whole the difference might be relatively small. There is always the possibility that some unforeseeable local development may occur that would materially accelerate or retard population growth in a particular community or county. But such a local development might merely offset other developments having opposite effects on population growth in other counties of the area. The county estimates, however, show approximately the range for population growth expected in each county, based on the assumed maximum and minimum net migrations into the State as a whole."

A footnote on page 46 of the same reference states:

> "The largest percentage increases apparently occurred in 'satellite' urban areas of the large metropolitan districts and in suburban, or rural non-farm areas."

It is possible that the growth curve for San Francisco County is somewhat higher than it should be, due to the effect of an inordinate increase in adjacent counties and the coincidental drift of population to suburban areas.

The State Reconstruction and Reemployment Commission then fixed the high and low estimates of civilian population for San Francisco in 1960 as follows (13):

	HIGH	LOW
1950	860,000	816,500
1960	1,032,000	885,000

If we examine these figures critically, it is apparent that the "low" estimate probably is more realistic. The 1950 "high" estimate of 860,000 is not probable in view of current population estimates. In view of a 1947 resident civilian population estimated at 785,000, it seems likely that the "low" estimate of 816,500 for 1950 will be much nearer to the true figure and may, in fact, be a

trifle high itself. The "low" estimate of 885,000 in 1960, therefore, probably is a more likely figure than the "high" figure or even an average of the two.

Other research into population trends in San Francisco is reported by Dr. N. L. Engelhardt, Sr., and his associates in the San Francisco School Building Survey:

> "Studies of future population of San Francisco by the City Planning Commission indicate civilian population by 1970 to range between 820,000 and 880,000." (33)

These figures contemplate the possibility of control of population growth through zoning ordinances.

The California State Office of Planning and Research has done some later research in this field. Their material is, as yet, unpublished except that parts of it have been prepared in mimeographed form. These data were transcribed from office records by Kenneth Brown of the California Teachers Association. Their estimates of San Francisco resident civilian population are as follows:

1947	790,000
1950	815,000
1960	890,000

The estimates of the Reconstruction and Reemployment Commission seem to us to represent the outcomes of careful study by methods that are clearly explained. They do not differ radically from later estimates and, indeed, probably played some part in the preparation of those later figures. This report, therefore, will accept their "low" figure of 885,000 as the basis for our estimate of the number employed in 1960.

Our estimate that 46 per cent of the total population in 1960 would be employed indicates a resident employment of 407,100. Total employment in San Francisco must include the group of commuting workers which in 1940 numbered fewer than 87,500. If this group of commuting workers grows at the same rate as the population, it should total about 98,000 by 1960. If we add the commuting workers to the resident workers we arrive at a figure of 505,100 for the total employed force in 1960 as compared to employment of 467,800 in 1947, an increase of 37,300, or 8 per cent.

Having established the number employed at 505,100, we should next consider how these workers will be apportioned among the various industry-groups. The tool which we have already developed in this chapter in our estimate of industrial trends projected to 1960 will be of assistance here.

In Table 27, which shows these trends, the last column indicates the percentages which employment in each industry-group will bear to total employment. In 1960, .3 per cent of all San Francisco workers will be engaged in Agriculture, Forestry, and Fishing; .1 per cent in Mining; 5.0 per cent in Construction; 17.1 per cent in Manufacturing; and so on. If these ratios are now applied to the total employment figure of 505,100, we establish the total number of workers in each industry-group. These industry-group totals are shown in Table 28.

TABLE 28

Total Number of Civilian Workers in San Francisco by Industry-Group in 1960—Estimated

	PER CENT		WORKERS	
Extraction		.4		2,020
Agriculture, Forestry and Fishing	.3		1,515	
Mining	.1		505	
Conversion		22.1		111,627
Construction	5.0		25,255	
Manufacturing	17.1		86,372	
Distribution		50.9		257,096
Transportation, Communication, and Utilities	13.9		70,209	
Wholesale and Retail Trade	29.0		146,479	
Finance, Insurance, and Real Estate	8.0		40,408	
Services		26.6		134,357
Business and Repair Services	3.8		19,194	
Personal Services	7.5		37,883	
Professional Services	8.7		43,944	
Government Services (n.e.c.)	6.6		33,336	
		100.0		505,100

With the industrial distribution of workers thus computed, we may proceed to the determination of the occupational distribution of workers according to industry-group. The ratios developed in Chart III, the derivation of which were explained in Chapter III, can be applied to these employment-by-industry-group figures which are presented in Table 28.

Chart IV was prepared by applying each of the ratios in the appropriate industry-group column of Chart III to the 1960 employment in the same industry-group as reported in Table 28. For instance, each of the ratios in the column headed Agriculture, Forestry, and Fishing in Chart III—Professional and Semiprofessional 3.00 per cent, Architects .24 per cent, Chemists, Assayers and Metallurgists .06 per cent, Proprietors, Managers, and Officials 17.59 per cent, and all the rest of the percentages in that column—were applied to 1,515, the estimated total employment in that industry-group for San Francisco in 1960.

If this chart is compared with Chart II, which was prepared for 1947, certain changes are noticeable in addition to the change in industrial distribution traced in Table 27. Each of the industry-groups has shown a numerical increase except those in the Extraction industries, which show a decrease. These rates of increase shown in Table 29 are consistent with the point of view expressed earlier in this chapter—that is, that the Service industries seem likely to assume more prominent places in the future.

TABLE 29

Percentage of Increase (Decrease) in Estimated Employment by Industry-Group in San Francisco between 1947 and 1960

	PER CENT INCREASE
Agriculture, Forestry, and Fishing	(—10.9)
Mining	(—15.8)
Construction	5.2
Manufacturing	5.3
Transportation, Communication, and Utilities	2.3
Wholesale and Retail Trade	8.7
Finance, Insurance, and Real Estate	11.6
Business and Repair Services	14.9
Personal Services	11.4
Professional and Related Services	14.4
Government Services (n.e.c.)	11.1

In considering the occupational distribution of workers in 1960, the reader must bear in mind the possible effect of technological changes or employment practices on the pattern of employment within a particular industry. Suggestions concerning some of these changes are made in the following paragraphs, but we can only speculate concerning others.

The large increase in the number of teachers is confirmed by the findings of the recent Engelhardt survey of school buildings, which pointed out a tremendous surge in the birthrate in the years since the war and the effect of that birthrate on the 1952-1965 school population.

Other professional occupations which have been short of workers during recent years show large increases. Doctors, Lawyers, Dentists, Nurses, and Entertainers are other examples of occupations in which relatively large expansion is needed. The Professional and Semiprofessional Workers category, in general, is expected to increase more rapidly than general employment.

The Clerical, Sales, and Kindred Workers, as a group, are expected to increase at about the same rate, 8.2 per cent, as general employment, with the larger rate of increase being in the sales field. The clerical workers are expected to maintain their predominance in numbers employed. The large rate of increase in Mail Carriers is a reflection of the large rate of increase in Government Services (n.e.c.); its rate of increase approximates that estimated for the general population. The Telegraph Operators and Telephone Operators occupations are examples of those which may be affected by technological change —and for which the procedure followed probably has produced figures which are somewhat high—the teletype machine and dial telephone system have brought technical changes which, though the instruments have been perfected for a number of years, are now beginning to affect seriously the number of persons employed in these occupations.

The rate of increase in the Craftsmen, Foremen, and Kindred Workers category is somewhat below the average rate of increase, reflecting the reduced emphasis on the Conversion industries. Both Construction and Manufacturing, although increasing in the numbers employed, are expected to represent a slightly smaller proportion of the total employment than in 1947. The greater rates of increase in this area will be in those crafts in which a substantial proportion of the employment is found in the Distribution and the Service industries. Mechanics and Repairmen, and Shoe Repairmen, being employed extensively in Business and Repair Services, are examples of such craftsmen. The caption, Other Craftsmen, includes upholsterers, window

decorators, and others particularly involved in Distribution industries. The larger increase in such crafts no doubt has been responsible for the increase in the Other Craftsmen and Kindred Workers caption.

About sixty-five per cent of the Operative and Kindred Workers are employed in the Manufacturing, and in the Transportation, Communication, and Utilities industries, both of which are expected to increase at lesser rates than most of the other industry-groups and, therefore, the Operative and Kindred Worker group would be expected to increase less rapidly than other occupational categories. Occupations that are exceptional within this category are Attendants and Dressmakers and Seamstresses. Conductors and Motormen and Laundry Operatives also appear to be rapidly increasing fields for employment. If there is an increase in the proportion of motor buses used in this city, or an extension of one-man operations such as the trolley-bus, our projection of the number of Conductors and Motormen will be too high because Chauffeurs will be hired in lieu of additional Conductors or Motormen.

The current investigation has revealed that the automatic washing-machine and the high operating costs of commercial laundries are tending to reduce the demand for commercial laundry service. If this tendency is continued, the relatively large increase in the number of Laundry Operatives should be reduced.

Over 70 per cent of Protective Service Workers, *i.e.*, Policemen, Firemen, Guards, Night Watchmen, Sheriffs, etc., are employed by federal, state, or municipal governmental agencies. The increase of 11.1 per cent in Government Services (n.e.c.) has had a strong effect on the rate of increase of Protective Service Workers.

The Service Workers occupational category shows an impressive rate of increase, again indicating the effect on occupations of industrial trends. The Personal Services industry and the Wholesale and Retail Trade industry (largely affected by eating and drinking establishments) employ nearly 75 per cent of all Service Workers. These industry-groups are expected to increase more rapidly than total employment, and the increase in employment in these occupations is expected to be relatively large.

The Laborers occupational category presents an interesting comparison. Chart III shows that workers in this classification represented 5.97 per cent of all employment in 1947. This proportion dropped to 5.77 per cent of total employment in 1960 as reported in Chart IV even though the actual number of such workers had increased 4.3 per cent. The increase in the number of Laborers probably will not be as great as the increase in those occupations whose numbers are concentrated in the Distribution and the Service industries.

Other basic tendencies cannot be evaluated accurately, and, therefore, we have only mentioned the half-dozen or so occupations in which the direction of technological change or change in employment practices is already sufficiently advanced to make itself felt. We are fully conscious of the fact that there are many contingencies which could alter the forecasts attempted herein. The problem of evaluating each influence affecting occupational and industrial trends, and weighing properly each element so that the final product will be accurate to a fine degree, is apparent.

We do believe that this approach to the forecasting of occupational distribution is essentially sound. It does not, and in forecasting long-term trends probably should not, give too high regard to temporary or seasonal trends.

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Appendix A

In the introductory chapter of this report reference was made to a meeting of community leaders called by Dr. Clish to discuss the Occupational Survey and problems incident to possible changes in the curricula of the schools. It is impossible to list the contribution of the individuals who attended the meeting, and we can only attempt to show the breadth of community interest by including in this appendix a list of the agencies which were invited to send representatives.

Alameda County Milk Dealers' Association
Allied Automotive Industries of California, Ltd.
Allied Printing Trades Council
American Association of Social Workers
San Francisco Chapter
American Council on Public Relations
San Francisco Bay Area Chapter
American Institute of Architects
Northern California Chapter
American Legion
San Francisco County Council
American Meat Institute
American National Red Cross
San Francisco Chapter
American Veterans Committee
American Women's Voluntary Service
San Francisco Office
Apartment House Association of San Francisco
Associated Farmers of California, Inc.
Associated General Contractors of America
Associated Home Builders of San Francisco
Associated Retail Credit Men of San Francisco
Associated Trust Companies of Central California
Automotive Maintenance and Garage Association
Bank of America
Bar Association of San Francisco
Better Business Bureau of San Francisco
Board of Fire Underwriters of the Pacific
Business and Professional Women's Club of San Francisco
California Association of Employers
California Chain Stores Association
Northern Division
California Congress of Parents and Teachers
San Francisco Second District
California Metal Trades Association
California Personnel Management Association
California Retail Grocers and Merchants Association, Ltd.
California Retail Hardware Association
California Retail Jewelers Association
California Retailers Association
California School of Fine Arts
California State Automobile Association
California State Brewers Institute
California State Employment Service
California State Federation of Labor
California Teachers Association
Central Council of Civic Clubs
Chinese Chamber of Commerce
Civil Service Association of San Francisco
Commercial Controls Corporation
Commonwealth Club of California
Community Chest of San Francisco
Congress of Industrial Organization
Council for Civic Unity
Council of Jewish Federation and Welfare Funds
Western States Region
Dairy Institute of California
Department of Industrial Relations
State of California
Disabled American Veterans

Division of Labor Statistics and Research
State of California
Downtown Association of San Francisco
Employers Council
Employing Printers Association of San Francisco
Employment Agencies Association
Emporium (The)
Engineering Societies Personnel Service
Exchange Club of San Francisco
Executives Association of San Francisco
Federal Civil Service Office
Gas Appliance Society
Glass Container Manufacturers Institute
Golden State Ltd.
Gyro Club of San Francisco
Hotel Employers Association of San Francisco
International Institute
Kiwanis Club of San Francisco
Laundryowners Association of San Francisco
Levi Strauss and Company
Macy's
Manufacturers and Wholesalers Association of San Francisco
Master Plumbers Association of San Francisco
Matson Navigation Company
Meyberg, Leo J. Company
Musical Association of San Francisco
National Conference of Christians and Jews
San Francisco Area Office
National Council of Catholic Women
National Council of Jewish Women
San Francisco Section
National Office Management Association
National Retail Dry Goods Association
National Safety Council
San Francisco Chapter
Northern California Association of Tobacco Distributors
Northern California Beer Distributors Association
Northern California Electrical Bureau
Northern California Retail Druggists Association
Owl Drug Company
Pacific Coast Customs and Freight Brokers Association
Pacific Coast Garment Manufacturers
Pacific Telephone and Telegraph Company
Painting and Decorating Contractors
Parochial Schools
Propeller Club of the United States
Port of San Francisco
Public Education Society of San Francisco
Realty Board
Retail Drygoods Association of San Francisco
Retail Florists Association
Retail Furniture Association of California, Inc.
Retail Grocers Association of San Francisco
Retail Liquor Stores Association of California
Retail Merchants Association of San Francisco Chamber of Commerce
Retail Tobacco Dealers Association of California
Roos Bros. Inc.
Rotary Club of San Francisco
Sales Managers Club of San Francisco
San Francisco, City of (Mayor's Office)
San Francisco Advertising Club
San Francisco Art Association
San Francisco Building and Construction Trades Council
San Francisco Bureau of Governmental Research
San Francisco Chamber of Commerce
San Francisco City and County Federation of Women's Clubs

San Francisco Civil Service Commission
San Francisco Classroom Teachers Association
San Francisco Cleaners and Dyers Association
San Francisco Clearing House Association
San Francisco Commercial Club
San Francisco Convention and Tourist Bureau
San Francisco Coordinating Council
San Francisco Council of Churches
San Francisco County Medical Society
San Francisco Electrical Contractors Association
San Francisco General Agents and Managers Association
San Francisco Junior Chamber of Commerce
San Francisco Labor Council
San Francisco Lions Club
San Francisco Meat Dealers Association
San Francisco Millinery Manufacturers Association
San Francisco Musical Club
San Francisco Optimist Club
San Francisco Real Estate Board
San Francisco Restaurant Association
San Francisco Retail Florists Association
San Francisco State College
San Francisco Women's Chamber of Commerce
Sommer and Kaufmann
Southern Pacific Company
Stanford University School of Education
Structural Engineers Association of Northern California
Transportation Club of San Francisco
United States Chamber of Commerce
United States Department of Commerce
University of California School of Education
Veterans of Foreign Wars Department of California
Vocational Rehabilitation Bureau State of California
Warehousemen's Association Port of San Francisco
Waterfront Employers Association of California
West Coast Lumberman's Association
Wine Institute (The)
Wooden Box Institute (The)
Young Men's Christian Association San Francisco Branch
Young Women's Christian Association of San Francisco

	Agriculture, Forestry, Fishing	Mining (Coal, metal, oil, stone, gravel)	Construction	Food & Kindred Products				Tobacco Mfg.	Textile Mill Prod.	Apparel & Other Fabric Textiles	Saw Mills and Planing Mills	Furniture and Lumber Prod.	Paper and Allied Prod.	Printing and Publishing	Chemicals and Allied Prod.	Petroleum and Coal Prod.	Rubber Prod	Leather and Leather Prod.	Stone, Clay and Glass Prod	Iron & Steel and their Prod		Non-Ferrous Metal Prod	Machinery		Transportation Equipment				Other Mfg. Ind.	Transportation			
				Baking	Beverage	Meat	Other Food Prod.													Blast Furnace & Steel Works	Misc Iron & Steel Prod		Electric Mach and Equip	Mach except Electric	Aircraft and Parts	Autos and Auto Equip	Ship & Boat Bldg & Rep	Ry & Misc Trans Equip.		Ry. and Ry Express	Street Ry. and Bus Lines	Trucking and Warehousing	Water Transport
TOTAL																																
PROFESSIONAL AND SEMI-PROFESSIONAL WORKERS	3.00	24 00	4 01	.34	1.60	45	2.10	42	1.00	2 43	2.17	97	.69	9 23	6.26	13.31	1 50	45	4.00	3 67	3 06	2 22	9 69	5 82	2.50	3 00	1 53		3 07	2 00	.43	.21	1 00
Actors and Actresses																03																
Architects	.24		.20							.01			.19	91		.08			75		.01			02			10		18				.02
Artists and Art Teachers																																
Authors, Editors and Reporters														7.33		05													04	.02			02
Chemists, Assayers and Metallurgists	.06	2.00			.60	.06	.52		.18			.05	06		2.78	3.41	.50		.83	1 00	31	33	23	11		14	01		33	02			01
Clergymen																																
Dentists																																
Civil Engineers	06	1.33	2.04												04	.69				.33	.14		08	11			08		04	.71	11	01	07
Electrical Engineers		.67	.13				09				33			02	.05	26				33	.07		3 77	20		14	08		11	19	.07	.02	01
Mechanical Engineers		1.17	.26				.25		.09	.01	.17	.13	.06	.04	39	1.69	50		42	67	84	56	1 54	2 29	1 00	1 00	26		67	.11	04	07	08
Other Technical Engineers		14.83	.07				.16		.18			.05		05	1 39	4.03				.67	.24	22	54	27		29	03		26	.04	04	02	03
Lawyers and Judges		.50												.02		.33					01		07	04					04	.15	.04	01	01
Librarians														.03																		
Musicians and Music Teachers																																07
Osteopaths																																
Pharmacists															05															.02			
Physicians and Surgeons		.33																														.01
Social and Welfare Workers																																
Teachers, including County Agents										.01																			.07	.06			
Trained Nurses and Student Nurses																																
Veterinarians																																
Other Professional Workers	1.29	.50	.08	.21	.50	.28	.30	.28	.09		.17			.19	30	49		.09	.25		.11		.31	11	50	14	01		.15	12	.03	.03	.05
Dancers, Showmen and Athletes																																.02
Designers									.27	2.09	.83	.24	.13					27	.25		04	33	.15	.07	.50	.14	.03		.22				
Draftsmen	.06	1.17	.43							.07		.34	.06	11	17	.77			.50	.67	1.00	33	1.77	1 98		.86	.71		.53	.35	.07	.01	.06
Surveyors	.06	1.17	.26													.10											.02			.02			.01
Other Semi-Professional Workers	1.24	.33	.54	.13	.50	.11	78	.14	.19	.24	.67	.16	19	.53	1.09	1.38	.50	.09	.67		.29	.45	1.23	62	.50	.29	19		.41	.19	.03	.04	.56
PROPRIETORS, MANAGERS AND OFFICIALS	17.59	14.50	6.70	3.97	6.27	5.67	8.81	5.57	7.91	6.20	8.50	5.97	7.94	7.89	12.26	9.51	11.00	6.73	9.25	4.33	5.16	10.89	10.00	8.53	12.00	6.86	1.11	3.00	10.26	6.96	1.07	6.83	12.13
CLERICAL, SALES AND KINDRED WORKERS	3.41	28.67	4.01	11.52	21.93	30.28	26.44	27.86	29.46	11.34	18.33	14.45	35.63	34.41	45.52	58.56	54 00	18.00	27.08	29.67	19.54	16 45	36.85	30.69	33.50	23 72	4 93	20.00	31.30	19.88	11.91	17.31	12.39
CLERICAL WORKERS	2.53	27.50	3 58	8.07	9.90	19.22	18.02	18.43	23.73	7.97	15.50	10.74	26.38	20 49	31.30	49.28	44.00	14.18	20.92	27.67	16.05	12.89	30.46	23.18	32.00	22.00	4.82	18.00	24.59	19.73	11 86	16.20	12.16
Baggagemen, Express Mess., Ry. Mail Clerks																														1.73	.23		.04
Bookkeepers, Accountants, Cashiers, Ticket Agents	1.00	6.50	1.15	1.86	2.97	3.94	5.06	3.29	3.46	1.69	4.67	2.27	3.88	2.91	5.30	10.51	7.00	2.36	3.67	2.33	2.05	2.00	4.08	3.29	2.50	2.57	.50	1.00	3.89	8.27	4.63	4.17	2.48
Mail Carriers																																	
Shipping and Receiving Clerks	.06		.03	2.07	1.13	3.16	1.87	2.00	3.64	1.93	1.83	2.13	5.06	.84	3.52	1.59	5.00	2.45	3.08	3.00	2.35	1 67	2.77	2.27	2.00	2.57	.15	1.00	2.89	.41	.04	1.06	.56
Stenos, Typists, Secretaries	.65	.50	.91	.76	1.97	2.56	3.70	2.71	4.36	1.39	2.67	2.34	5.56	5.38	8.70	1.85	8.00	2.64	5.25	3.67	3.50	2.89	7.38	5 11	24.50	3.57	.87	4.00	5.93	2.79	1.25	2.56	1.69
Telegraph Operators		.17														.36														3.81	.04	.16	.01
Telephone Operators		.33											.25	.26	.13		50	.09	.17		.11	.11	31	27		.14			.22	.38	14		.15
Other Clerical Workers	.82	20.00	1.49	3.38	3.83	9.56	7.39	10.43	12.27	2.96	6.33	4.00	11.88	11.11	13.52	34.84	23 50	6 64	8.75	18.67	8.04	6.22	15.92	12.24	3 00	13 15	3 30	12.00	11.66	22.31	5 53	8 25	7.23
SALES WORKERS	.88	1.17	.43	3.45	12.03	11.06	8.42	9.43	5.73	3.37	2.83	3.71	9.25	13.92	14.22	9.28	10.00	3.82	6.16	2.00	3.49	3.56	6.39	7.51	1.50	1 72	11	2.00	6.71	.15	.05	1.14	.23
Insurance Salesmen and Agents																																
Real Estate Salesmen and Brokers																																
Other Sales Workers	.88	1.17	.43	3.45	12.03	11.06	8.42	9.43	5.73	3.37	2.83	3.71	9.25	13.92	14.22	9.28	10.00	3 82	6.16	2.00	3.49	3.56	6.38	7.51	1 50	1.72	.11	2.00	6.71	.15	.05	1.14	.23
CRAFTSMEN, FOREMEN AND KINDRED	.59	3.83	69.59	26.00	5.67	3.94	3.46	1.72	4.91	6.52	20.50	28 76	7 06	34 60	5.52	6.54	4.50	1.84	12.58	19.33	30.60	40.56	23.46	38.56	26.00	32.71	52.77	40.00	16.58	19.48	11.09	3.93	5.01
Bakers				18.41			.05																										.08
Blacksmiths, Forgemen and Hammermen	.06	.17	.11				.03					.03			04	08			25	.33	.92	22	.08	.65		.57	.72	1 00	.11	.33	.09	.04	.07
Boilermakers			.04													.23					.76			.09			1.73	1 00	.04	69			14
Cabinet and Patternmakers			.11				.01			.01	.83	9.89							.08	.33	.86	.56	62	.78	.50	.71	5.17	1.00	1.18	.06	.04	.02	.01
Carpenters	.06	.17	25.31	.07	.23	.22	17		18	.01	1.67	2.18	.06	.04	.26	.31		18	.33	.33	.38	.22	.31	.29	.50	.57	8.51	3.00	.41	.94	.61	.09	.56
Compositors and Typesetters							.05			.04		.18	1.19	17.50	.09	.02					.03		.08	.04			.06		.22			.01	.01
Electricians		.33	3.36	.07	.13	.17	.19		.09		.17	.11	.06	.14	.26	.28		.09	.58	1.33	.53	.67	2.46	.49	1.00	1.14	3.82	1.00	.56	.54	.94	.05	.12
Foremen (nec)	.18	.83	2.81	2.76	1.67	1.66	2.12	.86	1.55	1.63	2.67	3.47	1.94	1.39	1.57	1.00	1.50	2.64	3.08	2.67	3.58	3.67	3.92	3.04	1.50	4.57	1.35	4.00	2.56	2.87	1.69	1.24	1.15
Inspectors (nec)		.17	.25		.07		.03							.01		.49				.33	.05		.08	.04		.14	.31			1.65	1 02	.11	.10
Locomotive Engineers																														3.79			.02
Locomotive Firemen																														2.48			
Machinists, Millwrights, Toolmakers		.17	.21	.41	.50	.39	.87	.28	.73	.26	1.83	2.79	1.81	.73	1.09	.67	1.00	.82	2.42	4.33	10.08	5.78	9.46	24.09	9.00	13.43	12.48	11.00	5 41	2.52	.84	.05	.38
Masons, Tilesetters and Stonecutters			4 90	.03			.01							.04	.04	.08			2.17	.33	.07					.14	.06			.02	.02		
Mechanics and Repairmen	.12	.33	1.44	1.59	1.17	.50	1.18	.29	1.91	.19	.83	1.29	.69	.39	.74	.77	.50	.46	1.33	1.00	2.49	2.00	3.84	4.87	9.50	7.00	1.61	5.00	1.81	2.07	4.84	1.70	.15
Molders, Metal												.03		.02						.67	6.72	3.11	.46	1 56		.72	.46	1.00	.63	.04			
Painters (Const.), Paperhangers			14.84	.07	.27		.09				.17			.04	.13	.18			.17		.05		.08	.04		.14	3.26	3.00	.18	.31	.30	.06	.22
Glaziers			4.10																.08								.02						
Plasterers, Cement Finishers			6.30		.17	.22	.10		.09			.03	.06	.01	.39	.74			.08	.67	.36	.22	.31	.22		.43	3.30	1.00	.18	.34	.11	.01	.13
Plumbers, Gas and Steamfitters													.50	13.59						3.00	.11							.11				
Printing Craftsmen																																
Rollers and Roll Hands, Metal																					.18	1.00					.01		04				
Roofers and Sheetmetal Workers			2.12		.07	.11	.04					.26		.01	.09	.05			.08		.82	14.89	.38	.65	3.00	.86	3.94	1.00	.56	.21	.09		.01
Shoemakers and Repairers (Not in Factory)																																
Stationary Engineers	.06	1.17	.39	.45	1.13	.61	1.19		.18	.02	.67	.45	.13	.11	.52	1.51		.18	.67	.67	.50	.33	.54	.51	.50	.43	.55	1.00	.41	.23	.23	.49	.57
Craftsmen, Hoistmen and Constr. Machine Operators		.33	2.00				.03				.33	.13		.01	.13	.08			.67	3.00	.86	.33	.23	.38		.43	1.02	2.00	.11	.23	.05	.02	.36
Structural and Ornamental Metal Workers			.89																													
Tailors and Furriers																					.41						3.72	2.00		.06	.04		.01
Other Craftsmen and Kindred	.12	.17	.41	2.14	.26	.06	2.30	.29	.18	3.41	11.33	7.92	.62	.61	.17	.05	1.50	.27	.59	.34	.84	7.56	.61	.82	.50	1.43	.67	2.00	.11	.10	.18	.04	.02
OPERATIVES AND KINDRED	2.06	26.50	5.96	54.03	54.66	50.55	40.07	54.00	46.00	.95	33.83	40.37	37.50	11.47	19.26	6.26	24.50	61.36	30.00	28.00	28.97	23.11	16.77	13.49	26.00	29.43	25.62	33.00	1 89	12.62	70.07	38.95	25.44
Attendants, Park, Lot, Filling Sta				.03						70.77																	.01		30.56				
Brakemen and Switchmen, RR																											.12			6.35	.05		.01
Chauffeurs, Deliverymen, Truckdrivers	1.12	.83	3.40	20.41	20.80	5.33	6.19	.57	.27	.23	7.50	1.47	1.19	1.25	1.52	.90	.50	.18	1.67	.67	.77	.45	.23	.25		.86	.42		.48	.92	.80			.46
Conductors, Motormen																															26.25	37.65	
Dressmakers and Seamstresses (Not in Factory)																															35.04		
Firemen, except Locomotive and Fire Dept	.06	.17	.06	.14	1.00	.44	.72	.14	.27	.03	3.17	.76	.31	.03	.74	.57		.18	1.25	.66	.34	.11	.08	.13		.14	.41	1.00	.33	.27	.20	.06	2.60
Laundry Operatives, ex. pvt. family										.96																			.04	.02			.02
Linemen and Servicemen, Tel. & Tel., Power			.09																											.11	.62	.05	.04
Painters, except Constr. & Maint.			.01	.03	.03		.03		.09			5.24	.06	.01	.17	.05		.09	.17	.33	.71	.33	.31	.40	1.00	1.43	.04	1.00	.56		.11	.01	.02
Power Station Operators												.79																		.02	.52		.01
Welders and Flame Cutters		.17	.19			.17	.07								.26	.23			.25	1.67	1.84	.44	.46	.89	1.50	2.00	5.78	3.00	.48	.33	.48	.01	.11
Other Operatives	.88	25.33	2.21	33.42	32.83	44.61	33.06	53.29	45.37	69.55	23.16	32.11	35.94	10.18	16.57	4.51	24.00	60.91	26.66	24.67	25.31	21.78	15.69	11.82	23.50	25.00	18.84	28.00	28.67	4.60	6.00	1.17	22.17
PROTECTIVE SERVICE WKRS	.41	.50	.23	.14	.97	.44	.76	.57	.73	.16		.42	.25	.21	.48	.59		.36	.42	1.33	.85		.23	.38		.57	.76		.96	1.89	.43	.76	1.79
SERVICE WORKERS, EXCEPT PROTECTIVE	.35	.17	.35	2.27	.87	.56	1.16	1.57	.18	.45	.67	.90	.81	.87	.35	2.26		09	1.34	.67	.58	.44	.15	.33		.57	.49	3.00	1.15	4.12	1.16	.71	8.98
Barbers, Beauticians, Manicurists											.33																.03		.04	.60	.02		.01
Cooks, except Private Family	.29		.11				.04																										2.71
Elevator Operators			.01		.03	.17	.09	.43		.03		.03	.12	.12	.05			.09	.17		.07	.11		.04					18	.06	.04	.14	.01
Janitors, Porters and Charwomen, Cleaning Women	.06	.17	.12	1.72	.67	.28	.79	.57	.18	.24	.34	.87	.63	.69	.30	1.87		.09	1.17	.67	.47	.33	.08	.27		.43	.33	2.00	.78	2.52	.91	.56	.58
Practical Nurses			.01																								.07						
Waiters, Waitresses and Bartenders			.04		.10		.02														.04		.07	.02		.14	.03	1.00	.04	.65	.07		1.93
Other Service Workers			.06	.55	.07	.11	.22	.57		.18			.06	.06		.39													.11	.29	.12	.01	3.74
LABORERS	72 47	1.83	9.11	1.52	7.77	7.94	11.78	8.00	9.45	2.02	16.00	8.03	10.06	.93	10.09	2.46	4.50	7.73	15.25	12.67	11.08	6.22	2.39	2.20		3.00	12.50	1.00	5 85	12.65	3.66	31.06	32.94
OCCUPATION NOT REPORTED	.12		.04	.21	.26	.17	.42	.29	.36	.11		.13	.06	.39	.26	.51		.64	.08	.33	.16	.11	.46			.14	.29		.33	.40	.18	.21	.26

RT I—OCCUPATION-INDUSTRY RATIOS FOR SAN FRANCISCO—1940 (DERIVED)

Transportation						Communication		Utilities	Wholesale and Retail Trade											Finance, Insurance and Real Estate		Business and Repair Service			Personal Services				Amusement, Recreation and Related Services		Professional and Related Services				Government Services (incl.)		Industries not Reported	
									Retail Trade										Wholesale Trade																			
Ry and Ry Express	Street Ry and Bus Lines	Trucking and Warehousing	Water Transport	Other Transport	Air Transport	Telephone & Telegraph	Radio Broadcasting		Hardware & Bldg Mat	Food and Dairy Stores	General Mdse and Variety	Apparel Access. and Shoes	Furniture & Household Eq.	Motor Vehicles and Access.	Filling Station	Drug Stores	Eating and Drink Places	Other Retail Stores		Banking and Finance	Ins and Real Estate	Auto Storage, Rent, Rep.	Bus. Serv and Adv.	Misc. Rep Serv & Hand Tr	Hotels and Lodging Places	Laundry, Cleaning & Dye	Misc Personal Serv.	Domestic Serv.	Theaters and Motion Pictures	Misc Amuse and Rec	Educational Svcs	Charit Relig., Member Orgs	Medical and Health Svcs	Legal, Eng & Misc Prof	Postal Service	Govt Servs (incl.)		
2 60	43	21	1 06	.45	19 13	4 43	59 86	8.38	63	.16	1 34	86	71	.25	.42	28 50	66	2 15	97	1 41	1 03	.16	14 64	65	.63	.08	9 69	1 47	14 77	34 72	83 74	30 84	71 01	60 00	10	11 88	2 22	TOTAL
							1 00																						5 27	.49	09							PROFESSIONAL AND SEMI-PROFESSIONAL WORKERS
			02	03		01		03	12		02							01	06	02		03														Actors and Actresses
						02	.14			.02	.32	09	09			07		.07		03			6 20				10		1 08	05	46	02		2 65		14	Architects
																																		3 45		02	Artists and Art Teachers
02			02		07	03	4 00	05			08	06	06		11	04		01	02	03	01		2 25		02				1 11	13	10	14	02	2 38		08	Authors, Editors and Reporters
02			01		16	02		23		02					10	07		01	03				.95			.02			04		08		05	51		21	11	Chemists, Assayers and Metallurgists
																															06	18 63	.06	04		01	Clergymen
																							01									02	8 02				02	Dentists
71	11	01	07	09	13	18	14	93			01							03	02	15			11							03	01		01	1 01		1 52	11	Civil Engineers
19	07	02	01	04	16	2 56	86	3 60			02		09					01	03	02	01		09	10	01	02			19	05	01	02	01	68		11	11	Electrical Engineers
11	04	07	08	08	81	20	14	90	13	01	05			06			01	05	19	02	04	03	14	15	01	02			11		04	02	1 75	02	23	33	Mechanical Engineers
04	04	02	03	06		02	29	35			05			05				06	02	16			21									04		2 38		12	Other Technical Engineers
15	04	01	01	08	06	05	43	10		01	02			08				01	03	45	25		09						04	03	01	05	33 29	02	1 57	22	Lawyers and Judges
						01					02							01		03										02	09	10	02		04	Librarians
			07				10 15				02		03				39	08					02		14		01		2 58	18 13	4 54	1 26	02	23		02		Musicians and Music Teachers
																																65					Osteopaths
02											02					27 75		01	02													09				02	Pharmacists
			01			01					01					04					03				01					03	09	09	17 75	02		27	Physicians and Surgeons
						01												01							08					74	24	3 19	33			2 96	Social and Welfare Workers
					.06	.01	.14	10			08	04			11	03	01	06	.01		01	10	02		.01		03	49	08	15	73 26	.72	32			36		Teachers, including County Agents
06				02	1 26	03		02			05							01	01	03	08		01		03		01	92	04		41	68	35 78	01	02	78	11	Trained Nurses and Student Nurses
																																22			03		Veterinarians
12	03	03	05	01	45	32	1 00	35	13	02	25	05		03	10	04	12	06	10	61	15	03	1 03	05	10		01	02	12	10	86	93	1 09	3 31	02	1 43	45	Other Professional Workers
			02	01			14										01								04			02	38	8 18	68	12			02		Dancers, Showmen and Athletes
								03			07	54	09					01	02				87						23					88		01		Designers
35	07	01	06		13	36		82	25		07		06					02	07	03	05		93	05			01		08		04		01	2 43	02	50	33	Draftsmen
02			04		13	01		10												01	01		02										01	52		29		Surveyors
19	03	04	56	03	15 71	58	41 43	77		09	18	08	29	03		46	12	1 72	26	08	05		1 66	30	18	02	9 52	02	3 42	6 59	75	4 88	6 41	3 77		1 12	45	Other Semi-Professional Workers
6.96	1.07	6 83	12.13	6 06	13.97	3 41	9.29	3 53	20.25	28.81	12.45	18.94	19.29	18.25	30.79	7.00	14.42	29.16	19.53	17.03	20.09	10.42	16.30	3 45	12.61	11.02	1.08	02	15 58	18.36	1 40	16.28	75	60	3 47	10.50	4 11	PROPRIETORS, MANAGERS AND OFFICIALS
39 88	11 91	17.34	12.39	25.48	37.52	75 19	22.57	34 88	55 75	39.52	69.89	41.52	48.15	66.25	4.53	50.07	3 36	55 97	58.75	75.52	57.50	3.36	39.22	2.45	17.88	8.44	2.45	38	21 54	6.08	5 26	27 21	9 51	38.46	86.43	34 09	41.41	CLERICAL, SALES AND KINDRED WORKERS
39.73	11.86	16.20	12.16	24 04	35.68	74.31	19.00	31.78	20.75	4 25	17.49	5.85	13.53	17.36	4.37	4 96	2 81	12.90	28.85	71.09	25 63	2 97	30.31	2 10	17 53	5 52	1.88	38	20.12	5 28	5 08	26.44	9 46	38.28	86.35	34.05	36.001	CLERICAL WORKERS
1 73	23		04	06	16																														6.14			Baggagemen, Express Mess., Ry. Mail Clerks
8.27	4.63	4.17	2.48	4.96	7.55	3.14	2.57	6.88	9.13	2.20	4.96	2.83	5.21	8.00	2.42	2.89	1.69	4 95	7 48	14.62	3.70	1 87	2.99	.85	3.17	1.50	.55	04	11 31	2.15	.40	3 23	77	12 37	29	3.73	6.44	Bookkeepers, Accountants, Cashiers, Ticket Agents
																																			42.88			Mail Carriers
.44	.04	1.06	.56	.94	.33	.02		.15	1.25	.20	1.16	32	.85	.33		.07	.01	.57	2 91	.05	03		.27	.05	.10	13	.01		50	03	.01	.05	.01		.02	.05	.56	Shipping and Receiving Clerks
2.79	1.25	2.56	1.69	3.74	9.58	3.48	10.29	4.55	4.37	.42	2 98	1 04	3.29	4.00	.37	61	07	2.80	6.71	16.52	10.57	.39	11.55	.40	1.40	.56	.42	27	3 54	97	2.51	15 72	2.83	22 15	.47	11 80	13.89	Stenos, Typists, Secretaries
3.81	.04	.16	.01	.05	.16	4 77	.14	.02											.01	.25			.15													.02		Telegraph Operators
.38	.14		.15	1.26	.45	24 78	.86	.78	.12	.03	.24	.04	.09	.19			.01	.12	.19	.65	.24		.31	.05	1 70	.08			.19	10	06	.35	.36	.14	.06	26	1.11	Telephone Operators
22.31	5.53	8.25	7.23	13.03	17.45	38 12	5.14	19.40	5.88	1.40	8.15	1.62	4.09	4.84	1.58	1.39	1.03	4.46	11.55	39.00	11.09	.71	15.04	.75	11.16	3.25	.90	07	4.58	2.03	2.10	7.09	5.49	3 62	36 49	18.19	14 00	Other Clerical Workers
.15	.05	1.14	.23	1.44	1.84	.88	3.57	3.10	35.00	35.27	52.40	35.67	34.62	48 89	.16	45.11	.55	43.07	29.90	4.43	31 87	.39	8.91	.35	35	2.92	.57		1.42	.80	.18	.77	.05	18	.08	.04	5.44	SALES WORKERS
																					21.91						.01		.04								Insurance Salesmen and Agents
																			.01	.01	9.54				.03													Real Estate Salesmen and Brokers
.15	.05	1.14	.23		1.84	.88	3.57	3.10	35.00	35.27	52.40	35.67	34.62	48.89	.16	45.11	.55	43.07	29.89	4.42	.09	39	8.91	.35	.32	2.92	.56		1.38	.80	.18	.77	.05	18	.08	.04	5.44	Other Sales Workers
19.48	11.09	3.93	5.01	2.64	11.77	3.27	3.86	16.65	7.25	7.41	3 44	20.27	16.00	8.00	1 63	1 07	39	5 20	2 78	63	1.93	59 35	13 46	77.00	2 67	3 19	7 46	03	5 11	2 09	93	1 60	1.56	35	1.63	3.72	4.56	CRAFTSMEN, FOREMEN AND KINDRED
			.08							6.19	03					04	18	01	01						17					03	03	09	.06			.02	Bakers
.33	.09	.04	.07	.05				.08		.01								02	01								.01						.01		.02	.08	.11	Blacksmiths, Forgemen and Hammermen
.69			.14	.01				.07														.06	.01	19.20						.02							Boilermakers
.06	.04	.02	.01			.01		.03	25	.01	.08		1 41					.07	03				03	.25 2.00	.02				.04		01	02	.01			.02	.11	Cabinet and Patternmakers
.94	.61	.09	.56	.22	.03	.04	.15	.25	1.00	.03	.15	.04	.20	.03		.04	.01	.07	.09	.11	.17		.13	40	.21			.01	1.07	.28	.10	.16	.14		.02	19	.11	Carpenters
		.01	.01			.01					.02					.03		.02	.02	.02	.06		.53		.03		.01		.04	.03	.03	.05	.01			04	Compositors and Typesetters
54	.94	.05	.42	.04	.32	.35	.57	3.32	25	.02	.10		3 09	.03			01	.04	.09	.05	.08	.13	.22	2 75	.15	.02			1.81	.26	.05	.02	.11	.04	.02	.42	.11	Electricians
1 87	1.69	1.24	1.45	.74	.45	1.76	.14	2.95	.75	.38	.32	.13	.21	.33	11	.11	04	.37	.76	.05	.12	90	.36	30	.07	1.17	.01		23	31	.05	.14	.20	.02	.72	.67	.56	Foremen (nec)
1.65	1.02	.11	.10	.15	.20	.25	.14	.85	.12	.02	.05			.03				.02	.10	.03	.04		.31						04			.02		.02				Inspectors (nec)
3.79			.02																																		Locomotive Engineers
2.48				.01																																	Locomotive Firemen
2.52	.84	.05	.38	.09	.48	.05	.14	.60	.25	.02	.01		.06	.08		.03		.04	.17	.01	.01	.19	14	2.10	.02	.10	.01		.19	.05	.01		.02	.11	.06	.24	.78	Machinists, Millwrights, Toolmakers
.02	.02							.05	.12				.03					.07	.01	.02			.01								.01	.02			.03		Masons, Tilesetters and Stonecutters
2.07	4.84	1.70	.45	1.12	9.61	.49	2.14	3.98	2.00	.25	.67	.08	5 59	7.36	1.47	.14	.05	95	.83	.25	.48	57.39	1.75	33 50	.44	.27	.04	.01	.77	.72	.16	.28	.24	.08	.63	1.09	1.23	Mechanics and Repairmen
.04																							.03	.05													Molders, Metal
31	.30	.06	.22	.03	.13	.04	.14	.17	.88	.05	.14	.03	.18	.03		04	.01	.05	.09	.13	32	.03	4.72		.40				.42	.13	.06	.16	.16	.02		.16	.11	Painters (Const.), Paperhangers
																					.01								.04				.01				Glaziers
.34	.11	.01	.13	.03	.13	.01		1.30	.88		.02		.06					.02	.08	.01	.04		.04		.08	.02			.04	.02	.05	.03	.08		.02	.15	.11	Plasterers, Cement Finishers
				.01		.01												.02		.01	.01		.47				.14		.04						.06		Plumbers, Gas and Steamfitters
																																					Printing Craftsmen
21	.09		.01	.04	.26	.01		.05	.38		.02		.03					.01	03				.13	.01	.55								.01		.03	.22	Rollers and Roll Hands, Metal
																																					Roofers and Sheetmetal Workers
											.06							.01						.05			7.14					02	.01		.01		Shoemakers and Repairers (Not in Factory)
23	.23	.49	.57	.05		.06	.44	2.68	.12	.07	.18		.03				.01	.13	13	11	.49		.02		.84	.52	.01		.50	10	29	42	.42	.05	14	.41	.78	Stationary Engineers
23	.05	.02	.36			.01		.12	.12									.04	.04		.01		.01													.05	.22	Cranemen, Hoistmen and Const. Machine Operators
																																					Structural and Ornamental Metal Workers
.06	.04		.01		.03	.01		.03															.01														Tailors and Furriers
.10	.18	.04	.02	.05	.13	.16		.12	.13	.35	.32	17.22						.03	.03						.04	.92	.09	.01	.88	.03	.08	.03	.01			.05	.11	Other Craftsmen and Kindred
11 61	70 07	38 95	25 44	56 88	6.61	11 43	.71	14 10	6.13	20 05	5 77	16.67	12 47	4 53	60.26	5 36	41	4 31	10.65	.29	.24	16 52	6 52	13 85	1 50	74 44	13.81	4.61	18 31	1 33	.75	3 44	2.23	17	.71	2 81	6 33	OPERATIVES AND KINDRED
6 35	.05		.01	.07	.78			.03			.02			.25	58 11		.01		.01			5 29			.04				.04						.02		Attendants, Park, Lot, Filling Sta.
	.80			.07																																	Brakemen and Switchmen, RR
.92	26 25	37.65	.46	54 04	1.06	.23		2.42	5.13	11.65	1.63	.68	6 44	1.53	.63	4 86	.18	3.81	6.37	.11	.03	1.19	.74	.45	.07	11 83	.51	4.45	.62	.33	.51	84	.31	02	.14	1.69	3.45	Chauffeurs, Deliverymen, Truckdrivers
	35 04																																				Conductors, Motormen
											1.86	8.96	.80					.07	.02				.01	.05	.10	.13	11.71	04	.15		.01	.72	.22				Dressmakers and Seamstresses (Not in Factory)
17	.20	.06	2.60	.03		.01		1.15		.02	.04	.02						.01	04	.07	.10		.01		.24	.40		.01	.15	.05	.08	.35	.30		.37	.21	.44	Firemen, except Locomotive and Fire Dept.
02			.02																						.61	45 04					.05	.95	1.11			.03		Laundry Operatives, ex. pvt. family
																	.02																				Linemen and Servicemen, Tel. & Tel., Power
.11	.62	.05	.04			10.54		4.93															.03													.04	.11	
02	.11	.01	.02	.01		.02		.02			.06		.91	.97				.01	.02			3.61	.03	.60	.02											.01		Painters, except Constr. & Maint.
33	.52		.01			.01		2.05																		.02											Power Station Operators
4 60	48 6 00	.01 1.17	.11 22.17	.08 2.58	.19 4.58	.62	.71	.25 3.25	1.00	8.38	2.16	7.01	4.32	.08 1.70	1.52	.50	.20	.01 .40	.04 4.15	.11	.11	.52 5.91	.03 5.67	6.25 6.50	.42	17.02	1.59	.11	.04 17.31	.95	.10	.58	.29	15	.20	.02 .79	.11 2.22	Welders and Flame Cutters Other Operatives
1.39	43	.76	1.79	4.12	.74	.07		.27	.62	.14	.67	.06	.09	.11	.05		.05	.24	.21	2.13	.51	.55	2.75	.05	.27	.44	.14	.04	.81	1.00	.31	.51	.19		.31	27.80	.78	PROTECTIVE SERVICE WKRS. SERVICE WORKERS, EXCEPT PROTECTIVE
4 12	1.16	.71	8.98	.69	7.35	1.48	1.57	.97	.50	1.83	4.95	1.23	1.09	.64	.26	6.75	80.30	1.65	.82	2.33	17.85	.39	5.83	.10	64.06	.31	65 26	92.55	21.19	27.00	6.99	18.72	14.02	.35	2.29	3.74	6.56	Barbers, Beauticians, Manicurists
60	02		.01 2.71	.05	.16 .48	.01				.12	.34 24					.04 .29	.03 13.08	.04 .05	.02	.02	.01		.01 02		5.80		45 54		.19	.03 .54	.66	.04 1.84	.04 1.25			.02 .22	.22	Cooks, except Private Family
06	.04	.14	.01	.05		.13		.10		.01	.82	.06	.09				.01	.10	.07	.23	3.77				1.49	.02			.08	.05	.03	.11	.17	.02	.15	.28	1.33	Elevator Operators
2 32	.91	.56	.58	.41	5.07	1.10	.71	.77	.38	.80	2.07	.81	.82	.61	.21	1.64	1.84	1.05	.65	1.83	12.15	.36	5.58	.10	5.60	.23	1.51	.33	6.34	2.92	4.38	8.91	1.34	.14	2.08	2.44	3.45	Janitors, Porters and Charwomen, Cleaning Women
65	.07				.16	.01				.79	.01										.01				.01		.03	3.25	.04		.01	.35	.55	.01		.02		Practical Nurses
29	.12	.01	1.93 3 74	.18	.32 1.16	.02 .21	.86	.10	.12	.11	.85 .62	.36	.16	.03	.05	4.57 .21	51.01 14.33	.30 .11	.04 .04	.23 .02	.07 1.83	.03	.01 .21		9.91 41.25	.06	.01 18.17	88.97	.04 14.50	2.28 21.18	.37 1.54	1.19 6.28	.95 9.72	.18	.06	.04 .72	.34 1.22	Waiters, Waitresses and Bartenders Other Service Workers
11 65	3 66	31.06	32.94	3.41	2.23	.35	1.14	20.77	8.87	1.84	1.42	.27	1.88	1.64	1.95	1.21	.30	1.18	6.06	.13	.74	9.06	1.06	2.40	.29	1.98	.10	.87	1.38	9.20	.37	1.07	.56	.05	4.55	5.01	6.22	LABORERS
40	.18	.21	.26	.27	.68	.37	1.00	.45		.23	.07	.18	.32	.33	.11	.04	.11	.14	.23	.33	.09	.19	.22	05	.09	.10	.01	.03	.31	.31	.25	.33	.15	.02	.51	.45	27.78	OCCUPATION NOT REPORTED

CHART II—OCCUPATIONS OF EMPLOYED PERSONS IN EACH

	Agriculture, Forestry, Fishing	Mining (Coal, metal, oil, stone, gravel)	Construction	MANUFACTURING																								TRANSPORTATION, COMMUNICATION AND						
				Food & Kindred Producers				Tobacco Mfg.	Textile Mill Prod.	Apparel & Other Fabric Textiles	Saw Mills and Planing Mills	Furniture and Lumber Prod.	Paper and Allied Prod.	Printing and Publishing	Chemicals and Allied Prod.	Petroleum and Coal Prod.	Rubber Prod.	Leather and Leather Prod.	Stone, Clay and Glass Prod.	Iron & Steel and their Prod.		Non-Ferrous Metal Prod.	Machinery		Transportation Equipment				Other Mfg. Ind.	Transportation						Co
				Baking	Beverage	Meat	Other Food Prod.																						Ry. and Ry. Express	Street Ry. and Bus Lines	Trucking and Warehousing	Water Transport	Other Transport	Air Transport	T ph & gr
																				Blast Furnace & Steel Works	Misc. Iron & Steel Prod		Electric Mach. and Equip	Mach except Electric	Aircraft and Parts	Autos and Auto Equip	Ship & Boat Bldg. & Rep.	Ry. & Misc. Equip												
TOTAL	1,700	600	24,000	2,900	3,000	1,800	6,700	700	1,100	8,300	600	3,800	1,600	10,100	2,300	3,900	200	1,100	1,200	300	7,400	900	1,300	4,500	200	700	14,600	100	2,700	5,200	5,600	8,700	21,500	7,800	3,100	12
PROFESSIONAL AND SEMI-PROFESSIONAL WORKERS	51	144	963	10	48	8	141	3	11	202	13	37	11	932	144	519	3	5	48	11	226	20	126	262	5	21	223		83	104	24	18	229	35	593	
Actors and Actresses																1																			
Architects	4		48							1			3	92		3			9		1			1			15		5				5	2		
Artists and Art Teachers																																			
Authors, Editors and Reporters	1	12			18	1	35		2			2	1	740	64	2 133	1		10	3	23	3	3	5		1	2		1 9	1 1			5 3		2 5	
Chemists, Assayers and Metallurgists																																			
Clergymen																																			
Dentists																																			
Civil Engineers	1	8	489												1	27				1	10		1	5			12		1	37	6	1	14	7	4	
Electrical Engineers		4	31				6				2			2	1	10			5	1	5		49	9		1	12		3	10	4	2	3	3	5	
Mechanical Engineers		7	63				17		1	1	1	5	1	4	9	66	1		5	2	62	5	20	103	2	7	37		18	6	2	6	17	6	25	
Other Technical Engineers		89	17				11		2			2		5	32	157			4	2	18	2	7	12		2	4		7	2	2	2	6	5		
Lawyers and Judges		3												2		13					1		1	2					1	8	2	1	3	6	2	
Librarians														3																					
Musicians and Music Teachers																																	14		
Osteopaths																																			
Pharmacists																1																			
Physicians and Surgeons		2																											1						
Social and Welfare Workers																																	3		
Teachers, including County Agents										1																			2	3			2	39	
Trained Nurses and Student Nurses																																			
Veterinarians																																			
Other Professional Workers	22	3	20	6	15	5	20	2	1		1			19	7	19		1	3		8		4	5	1	1	2		4	6	2	2	10	1	14	
Dancers, Showmen and Athletes																																	5	1	
Designers									3	173	5	9	2					3	3		3	3	2	3	1	1	4		6							
Draftsmen	1	7	103							6		13	1	11	4	30			6	2	74	3	23	89		6	104		15	18	4	1	13		4	
Surveyors	1	7	63													4											3			1			9		4	
Other Semi-Professional Workers	21	2	129	4	15	2	52	1	2	20	4	6	3	54	25	54	1	1	8		21	4	16	28	1	2	28		11	10	2	3	119	2	487	
PROPRIETORS, MANAGERS AND OFFICIALS	299	87	1,608	115	188	102	590	39	87	515	51	227	127	797	282	371	22	74	111	13	382	98	130	384	24	48	162	3	277	362	60	594	2,608	473	433	
CLERICAL, SALES AND KINDRED WORKERS	58	172	963	334	658	545	1,771	195	324	941	110	549	570	3,475	1,047	2,284	108	198	325	89	1,446	148	479	1,381	67	166	720	20	845	2,074	667	1,509	2,665	1,987	1,163	9,0
CLERICAL WORKERS	43	165	860	234	297	346	1,207	129	261	661	93	408	422	2,069	720	1,922	88	156	251	83	1,188	116	396	1,043	64	154	704	18	664	2,066	664	1,410	2,615	1,875	1,106	8,5
Baggagemen, Express Mess., Ry. Mail Clerks																														90	13		8	5	5	
Bookkeepers, Accountants, Cashiers, Ticket Agents	17	39	276	54	89	71	339	23	38	140	28	86	62	294	122	410	14	26	44	7	152	18	53	148	5	18	73	1	105	430	259	363	532	387	234	
Mail Carriers																																			
Shipping and Receiving Clerks	1		7	60	34	57	125	14	40	160	11	81	81	85	81	62	10	27	37	9	174	15	36	102	4	18	22	1	78	23	2	92	121	73	10	
Stenos, Typists, Secretaries	11	3	219	22	59	46	248	19	48	115	16	89	89	543	200	72	16	29	63	11	259	26	96	230	49	25	127	4	160	145	70	223	364	292	297	
Telegraph Operators		1														14														198	2	14	3	4	5	
Telephone Operators		2												25	6	5	1	1	2		8	1	4	12		1			6	20	8		32	98	14	2,0
Other Clerical Workers	14	120	358	98	115	172	495	73	135	246	38	152	190	1,122	311	1,359	47	73	105	56	595	56	207	551	6	92	482	12	315	1,160	310	718	1,555	1,016	541	4,
SALES WORKERS	15	7	103	100	361	199	564	66	63	280	17	141	148	1,406	327	362	20	42	74	6	258	32	83	338	3	12	16	2	181	8	3	99	50	112	57	
Insurance Salesmen and Agents																																			
Real Estate Salesmen and Brokers																																			
Other Sales Workers	15	7	103	100	361	199	564	66	63	280	17	141	148	1,406	327	362	20	42	74	6	258	32	83	338	3	12	16	2	181	9	3	99	50	112	57	
CRAFTSMEN, FOREMEN, KINDRED	10	23	16,701	754	170	71	63	12	54	541	123	1,093	113	3,495	127	255	9	51	151	58	2,264	365	305	1,735	52	229	7,704	40	446	1,03	621	342	1,077	206	365	
Bakers				534			3																										17			
Blacksmiths, Forgemen and Hammermen	1	1	27				2					1			1	3			3	1	68	2	1	29		4	105	1	3	17	5	3	15	4		
Boilermakers			9													9					56			4			253	1	1	36			30	1		
Cabinet and Patternmakers			27				1			1	5	376							1	1	64	5	8	35	1	5	755	1	32	3	2	2	2			
Carpenters	1	1	6,074	2	7	4	11		2	1	10	83	1	4	6	12		2	4	1	28	2	4	13	1	4	1,242	3	11	49	34	8	121	17	1	
Compositors and Typesetters							3			3		7	19	1,768	2	1					2		1	2			9		6			1	2			
Electricians		2	806	2	4	3	13		1		1	4	1	14	6	11		1	7	4	39	6	32	22	2	8	558	1	15	28	53	4	91	3	10	
Foremen (nec)	3	5	674	80	50	30	142	6	17	135	16	132	31	140	36	39	3	29	37	8	265	33	51	137	3	32	197	4	69	149	95	108	312	58	14	
Inspectors (nec)		1	60		2		2							1		19				1	4		1	2		1	45			86	57	10	22	12	6	
Locomotive Engineers																														197			5			
Locomotive Firemen																														129						
Machinists, Millwrights, Toolmakers		1	51	12	15	7	58	2	8	21	11	106	29	74	25	26	2	9	29	13	746	52	123	1,084	18	94	1,822	11	146	131	47	4	82	1	15	
Masons, Tileserters and Stonecutters			1,177	1			1								1	3			26	1	5					1	8			1	1			7		
Mechanics and Repairmen	2	2	346	46	35	9	79	2	21	16	5	49	11	39	17	30	1	5	16	3	184	18	50	219	19	49	235	5	49	108	271	148	97	87	298	
Molders, Metal												1		2						2	497	28	6	70		5	67	1	17	2						
Painters (Const.), Paperhangers Glaziers			3,561	2	8		6				1			4	3	7			2		4		1	2		1	476	3	5	16	17	5	47	2	4	
Plasterers, Cement Finishers			984																1								3								
Plumbers, Gas and Steamfitters			1,512		5	4	7		1			1	1	1	9	29			1	2	27	2	4	10		3	482	1	5	18	6	1	27	2	4	
Printing Craftsmen													8	1,373							8								3				1		
Rollers and Roll Hands, Metal																				1	13	9					2		1						
Roofers and Sheetmetal Workers			508		2	2	3					10		1	2	2			1	9	61	134	5	29	6	6	575	1	15	11	5		2	3	8	
Shoemakers and Repairers (Not in Factory)																																			
Stationary Engineers	1	7	94	13	34	11	80		2	2	4	17	2	11	12	59		2	8	2	37	3	7	23	1	3	80	1	11	12	13	43	122	4		
Craftsmen, Hoistmen and Const. Machine Operators		2	481				2				2	5		1	3	3			8	9	64	3	3	17		3	149	2	3	12	3	2	77			
Structural and Ornamental Metal Workers			213																		30														
Tailors and Furriers										283																	543	2		3	2		2		1	
Other Craftsmen and Kindred	2	1	97	62	8	1	154	2	2	79	68	301	10	62	4	2	3	3	7	1	62	68	8	37	1	10	98	2	3	5	10	3	4	4	4	
OPERATIVES AND KINDRED	35	159	1,431	1,567	1,640	910	2,685	378	506	5,874	203	1,534	600	1,158	443	244	49	675	360	84	2,144	208	218	607	52	206	3,741	33	825	656	3,924	3,389	5,469	4,437	205	
Attendants, Park, Lot, Filling Sta				1																							2								
Brakemen and Switchmen, RR																											17			330	3		3	6	24	
Chauffeurs, Deliverymen, Truckdrivers	19	5	816	592	624	96	415	4	3	19	45	56	19	126	35	35	1	2	20	2	57	4	3	11		6	61		13	48	45			6		
Conductors, Motormen																															1,470	3,276	99	4,215	33	
Dressmakers and Seamstresses (Not in Factory)																															1,962				
Firemen, except Locomotive and Fire Dept	1	1	15	4	30	8	48	1	3	2	19	29	5	3	17	22		2	15	2	25	1	1	6		1	60	1	9	14	11	5	559	2		
Laundry Operatives, ex. pvt. family										80																			1	1			3			
Linemen and Servicemen, Tel. & Tel., Power			21																											6	35	4	9			
Painters, except Constr. & Maint			2	1	1		2		1			199	1	1	4	2		1	2	1	53	3	4	18	2	10	6	1	15	1	6	1	3	1		
Power Station Operators																														1	29		3			
Welders and Flame Cutters		1	45									30			6	9			3	5	136	4	6	40	3	14	844	3	13	17	27	1	24	6	6	
Other Operatives	15	152	532	969	985	803	2,215	373	499	5,773	139	1,220	575	1,028	381	176	48	670	320	74	1,873	196	204	532	47	175	2,751	28	774	239	336	102	4,766	201	142	
PROTECTIVE SERVICE WKRS	7	3	55	4	29	8	51	4	8	13		16	4	21	11	23		4	5	4	63		3	17		4	111		26	98	24	66	385	321	23	
SERVICE WORKERS, EXCEPT PROTECTIVE	6	1	84	66	26	10	78	11	2	37	4	34	13	88	8	88		1	16	2	43	4	2	15		4	72	3	31	214	65	62	1,930	54	225	
Barbers, Beauticians, Manicurists																																	3			
Cooks, except Private Family	5		26				3				2																6		1	31	1		582	4	15	
Elevator Operators			3		1	3	6	3		2		1	2	12	1				2		5	1		2					5	3		12			
Janitors, Porters and Charwomen, Cleaning Women	1	1	28	50	20	5	53	4	2	20	2	33	10	70	7	73		1	14	2	35	3	1	12		3	48	2	21	131	51	49	124	32	157	
Practical Nurses			3																								10								5	
Waiters, Waitresses and Bartenders			9		3		1						1	6		15					3		1	1		1	4	1	3	34	4		414		10	
Other Service Workers			15	16	2	2	15	4		15																1	4			15	7	1	804	14	35	
LABORERS	1,232	11	2,186	44	233	143	789	56	104	168	96	305	161	94	232	96	9	85	183	38	820	56	31	99		21	1,825	1	155	658	205	2,702	7,082	266	69	
OCCUPATION NOT REPORTED	2		9	6	8	3	28	2	4	9		5	1	40	6	20		7		1	12		6			1	42		9	21	10	18	55	21	21	

EMPLOYED PERSONS IN EACH INDUSTRY FOR SAN FRANCISCO—1947 (DERIVED)

TION, COMMUNICATION AND UTILITIES							*Wholesale and Retail Trade											Finance, Insurance and Real Estate		Business and Repair Service			Personal Services				Amusement, Recreation and Related Services		Professional and Related Services				Government Services (nec)		Industry not Reported	Total All Industries	1947 % of Employed in Occupations	1940 % of Occupations to Total Emp.	
portation				Communication		Utilities	Retail Trade									Wholesale Trade		Banking and Finance	Ins. and Real Estate	Auto Storage, Rent, Rep.	Bus. Serv. and Adv.	Misc. Rep. Serv. & Hand Tr.	Hotels and Lodging Places	Laundry, Cleaning & Dye.	Misc. Personal Serv.	Domestic Serv.	Theaters and Motion Pictures	Misc. Amuse. and Rec.	Educational Serv.	Charit. Relig., Member Orgs.	Medical and Health Serv.	Legal, Eng. & Misc. Prof.	Postal Service	Govt. Servs. (nec)				
g.	Water Transport	Other Transport	Air Transport	Telephone & Telegraph	Radio Broadcasting		Hardware & Bldg. Mat.	Food and Dairy Stores	General Mdse. and Variety	Apparel, Access. and Shoes	Furniture & Household Eq.	Motor Vehicles and Access.	Filling Station	Drug Stores	Eating and Drink. Places	Other Retail Stores																						
0	21,500	7,800	3,100	12,000	700	4,000	800	15,500	12,000	10,900	3,400	3,600	1,900	2,800	23,300	13,500	47,000	11,000	25,200	3,100	11,600	2,000	10,200	4,800	8,000	11,000	2,600	3,900	8,700	4,300	12,400	6,500	5,100	24,900	900	467,800			TOTAL
8	229	35	593	532	419	335	5	25	160	94	24	9	8	798	154	290	456	155	265	5	1,698	13	64	4	775	162	384	1,354	7,285	1,326	8,805	3,900	5	2,958	20	37,760	8.07	9.53	PROFESSIONAL AND SEMI-PROFESSIONAL WORKERS
					7																						137	19	8							171	.04	.06	Actors and Actresses
	5	2		1		1	1		2							3	7	5			4										174		34		307	.07	.07	Architects
				3	1			3	38	10	3			2		10	13				719				8		28	2	40	1		226		6		1,228	.26	.26	Artists and Art Teachers
	5		2	4	28	2			10	7	2		2	1		2	7	3	3		261		2				29	5	9	6	2	155		19		1,310	.28	.31	Authors, Editors and Reporters
	3		5	3		9		3					2	2		1	38				110			1			1		7		6	33		52	1	607	.13	.12	Chemists, Assayers and Metallurgists
																													5	801	8			3		817	.17	.14	Clergymen
																					1								1	1	994	3		6		1,005	.21	.31	Dentists
1	14	7	4	22	1	37			1								16	2	37		13							1	1		1	105		378	1	1,241	.27	.25	Civil Engineers
2	3	3	5	307	6	144			2		3					1	13	2	3		11	2	1	1			5	2	1	1	1	44		28	1	742	.16	.13	Electrical Engineers
6	17	6	25	24	1	36	1	1	6			2			2	7	91	2	9	1	16	3	1	1			3		3		1	114	1	57	3	887	.19	.18	Mechanical Engineers
2	6	5		2		14			6			2					27	2	41		24								3			29				697	.15	.08	Other Technical Engineers
1	3	6	2	6	3	4		1	2			3				2	13	50	71		10						1	1	1	2	5	2,164	1	390	2	2,777	.59	.58	Lawyers and Judges
				1					2							1	1	3	1									1	171	4	12	1		11		212	.05	.10	Librarians
	14				71				2		1				91	10					2		14		1		67	707	395	54	3	15		6		1,453	.31	.54	Musicians and Music Teachers
																															51				51	.01	.01	Osteopaths
									2					777		1	10											1			11		6		810	.17	.28	Pharmacists
	3			1					1					1			1		8				1						8	4	2,201	1	67		2,299	.49	.63	Physicians and Surgeons
				1												1			1				8					29	21	137	41		737		976	.21	.26	Social and Welfare Workers
		2	2	1	1	4			10	4			2	1	3	8	6		2	3	1		1		2	54	2	6	6,374	31	40			90		6,649	1.42	1.57	Teachers, including County Agents
			39	4		1			6							1	3	3	20		1		3			101	1		36	29	4,437	1	195	1	4,892	1.05	1.73	Trained Nurses and Student Nurses
																															28		7		35	.01	.01	Veterinarians
2	10	1	14	38	7	14	1	3	30	5		1	2	1	28	8	46	68	37	1	119	1	10		1	2	3	4	75	40	164	215	1	356	4	1,489	.32	.28	Other Professional Workers
	5	1			1										2		4						4			2	10	319	59	5			5		413	.09	.18	Dancers, Showmen and Athletes
						1										2	11				101						6					57		2		472	.10	.08	Designers
1	13		4	43		33	2		9	59	3					3	34	3	11		108	1			1		2		3		1	158	1	124	3	1,080	.23	.21	Draftsmen
	9		4	1		4			9		2							1	3		3										1	34		72		211	.04	03	Surveyors
3	119	2	487	70	290	31		14	22	9	10	1		13	28	232	123	9	13		193	6	19	1	761	3	89	257	65	210	795	245		278	4	4,929	1.05	1.13	Other Semi-Professional Workers
594	2,608	473	433	409	65	141	162	4,466	1,494	2,064	656	657	585	196	3,360	3,937	9,179	1,874	5,063	323	1,891	69	1,286	529	86	2	405	716	122	700	93	39	177	2,615	37	55,141	11.79	11.37	PROPRIETORS, MANAGERS AND OFFICIALS
,509	2,665	1,987	1,163	9,023	158	1,395	446	6,126	8,386	4,526	1,637	2,385	86	1,402	783	7,556	27,613	8,307	14,490	104	4,550	49	1,824	405	196	42	560	237	458	1,170	1,179	2,500	4,403	8,488	373	150,915	32.26	29 86	CLERICAL, SALES AND KINDRED WORKERS
,410	2,615	1,875	1,106	8,917	133	1,271	166	659	2,098	638	460	625	83	139	655	1,742	13,560	7,820	6,459	92	3,516	42	1,788	265	150	42	523	206	442	1,137	1,173	2,488	4,404	8,478	324	94,993	20.31	19.86	CLERICAL WORKERS
	8	5	5																													313			434	.09	.04	Baggagemen, Express Mess., Ry. Mail Clerks
363	532	387	234	377	18	275	73	341	595	308	177	288	46	81	394	668	3,516	1,608	932	58	347	17	324	72	44	5	294	84	35	139	95	804	15	929	58	17,974	3.84	3.69	Bookkeepers, Accountants, Cashiers, Ticket Agents
																																2,187			2,187	.47	.25	Mail Carriers
92	121	73	10	2		6	10	31	139	35	29	12		2	3	77	1,368	5	7		31	1	10	6	1		13	1	1	2	1		1	12	5	3,564	.76	.67	Shipping and Receiving Clerks
223	364	292	297	418	72	182	35	65	357	113	112	144	7	17	17	378	3,154	1,817	2,663	12	1,340	8	143	27	33	30	92	38	218	676	351	1,440	24	2,938	125	21,331	4.56	5.55	Stenos, Typists, Secretaries
14	3	4	5	572	1	1											4	28			17												6			870	.19	.14	Telegraph Operators
718	32	98	14	2,974	6	31	1	5	29	5	3	7			1	17	88	72	61		36	1	173	4			5	4	5	15	45	9	3	65	10	3,921	.84	.85	Telephone Operators
99	1,555	1,016	541	4,574	36	776	47	217	978	177	139	174	30	39	240	602	5,430	4,290	2,796	22	1,745	15	1,138	156	72	7	119	79	183	305	681	235	1,861	4,528	126	44,712	9.56	8.67	Other Clerical Workers
	50	112	57	106	25	124	280	5,467	6,288	3,888	1,177	1,760	3	1,263	128	5,814	14,053	487	8,031	12	1,034	7	36	140	46		37	31	16	33	6	12	4	10	49	55,922	11.95	10.00	SALES WORKERS
																	1		5,528		5				1		1			1				1		5,538	1.18	.87	Insurance Salesmen and Agents
																	4	1	2,481		1		3													2,490	.53	.51	Real Estate Salesmen and Brokers
99	50	112	57	106	25	124	280	5,467	6,288	3,888	1,177	1,760	3	1,263	128	5,814	14,048	486	22	12	1,028	7	33	140	45		36	31	16	32	6	12	4	9	49	47,894	10.24	8 62	Other Sales Workers
342	1,077	206	365	392	27	666	58	1,149	413	2,209	544	288	31	30	91	702	1,307	91	486	1,840	1,561	1,540	272	153	597	3	159	78	81	69	196	23	83	926	41	57,248	12.24	11.19	CRAFTSMEN, FOREMEN, KINDRED
	17							959	4					1	42	1	5						17					1	3	4	8			5		1,604	.34	.51	Bakers
3	15	4				3		2								2	4			2	1	384			1			1			1			1	19	1	719	.15	.06	Blacksmiths, Forgemen and Hammermen
	30	1				3											1				5													1		410	.09	.09	Boilermakers
2	2			1		1	2	1	9		48					9	14		1		40	2				1		1	1	1				4	1	1,468	.31	.25	Cabinet and Patternmakers
8	121	17	1	5	1	10	8	5	18	4	7	1		1	2	9	42	12	42		15	8	22			1	28	11	9	7	17		1	47	1	8,098	1.73	1.21	Carpenters
1	2			1					3							2	11	2	14		62		3		1		1	1	3	2	1			10		1,944	.42	.57	Compositors and Typesetters
4	91	3	10	42	4	133	2	4	12						6	42	1,817	2	20	4	26	55	15	1			47	10	4	1	14	4	1	105	1	2,418	.52	.48	Electricians
108	312	58	14	211	1	118	6	59	38	14	105	1		2	12	42	357	5	31	28	42	6	7	56	1		6	12	4	6	25	1	37	167	5	4,465	.95	.64	Foremen (nec)
10	22	12	6	30	1	34	1	3	6		7	12	2	3	8	50	47	4	10		36						1			1		1				512	.11	.15	Inspectors (nec)
	5																																		202	.04	.07	Locomotive Engineers
		1																																	130	.03	.04	Locomotive Firemen
4	82	7	15	6	1	24	2	3	1					1	1	6	80	1	2	6	16	42	2	5	1		5	2	1		3	7	3	60	7	5,174	1.11	.87	Machinists, Millwrights, Toolmakers
						2	1									10	3		5		1								1	1	2			7		1,260	.27	.13	Masons, Tilesetters and Stonecutters
148	97	87	298	59	15	159	16	39	81	9	190	265	28	4	12	128	390	28	121	1,779	203	670	45	13	3	1	20	28	14	12	30	5	32	271	11	7,252	1.55	1.82	Mechanics and Repairmen
																					3	1														702	.15	.07	Molders, Metal
5	47	2	4	5	1	7	7	8	17	3	6	1		1	2	7	44	14	81	1	547		41				11	5	5	7	20	1				5,059	1.08	1.19	Painters (Const.), Paperhangers
																			3								1				1		39	1				Glaziers
1	27	2	4	1		52	7		3		2					2	38	1	10		4		8	1			1	1	4	1	10		1	37	1	994	.21	.20	Plasterers, Cement Finishers
		1		1												3	1	1	3		56				11		1							15	2,350	.50	.36	Plumbers, Gas and Steamfitters
																																			1,485	.32	.37	Printing Craftsmen
	2	3	8	1		2	3		2		1					1	12		1	4	1	11									1					34	.01		Rollers and Roll Hands, Metal
																																	6	2	1,440	.31	.32	Roofers and Sheetmetal Workers
																															1						Shoemakers and Repairers
43	122	4		8	3	107	1	11	7	35					3	2	61	12	122		2		86	25	571		13	4	25	1	1			2		620	.13	.16	(Not in Factory)
									22		1					18						1			1				18	1	52	3	7	102	7	1,435	.31	.38	Stationary Engineers
2	77			1		5	1									5	19		2		1												13	2	903	.19	.10	Cranemen, Hoistmen and Const. Machine Operators
	2		1	1		1															1																Structural and Ornamental Metal Workers
3	4	4	4	19		5	1	55	38	1,877	174	4	1	18	18	4	15	6	18	16	540	317	4	44	7	1	23	1	7	6	8	1	1			801	.17	.13	Tailors and Furriers
3,389	5,469	4,437	205	1,372	5	564	49	3,108	693	1,817	424	163	1,145	150	96	582	5,006	32	60	512	756	277	153	3,573	1,105	507	476	52	65	148	277	11	36	700	57	2,272	.49	.53	Other Craftsmen and Kindred
																																				3,497	.75	.49	
	3	6	24			1			2			9	1,104		2		3			164			4				1							6		70,620	15.09	14.86	OPERATIVES AND KINDRED
		6																																	1,335	.29	.46	Attendants, Park, Lot, Filling Sta.
3,276	99	4,215	33	28		97	41	1,806	196	74	219	55	12	136	42	514	2,994	12	7	37	66	9	7	568	41	490	16	13	44	36	38	1	7	421	31	398	.08	.10	Brakemen and Switchmen, RR
																																				20,308	4.34	2.90	Chauffeurs, Delivery men, Truckdrivers
																																				1,962	.42	.78	Conductors, Motormen
																																						Dressmakers and Seamstresses (Not in Factory)
									223	977	27					1	9	8			1	1	10	6	937	4	4		1	31	27			1		2,268	.48	.61	
5	559	2		2		46										1	2	19	8	26			25	19		1	4	2	7	15	38					1,224	.26	.13	Firemen, except Locomotive and Fire Dept.
	3															4							62	2,162					4	41	138					2,503	.53	1.07	Laundry Operatives, ex. pvt. family
4	9			1,265		197			3	5	2							1			3												19	53	4				Linemen and Servicemen, Tel. & Tel., Power
																																		7				
																																		10	1	1,552	.33	.24	
1	3	1		2		1										2	9			112	4	12	2		1									1		559	.12	.16	Painters, except Constr. & Maint.
	3			1		82			7			31	35																					1		118	.03	.03	Power Station Operators
1	24	6	6	2		10							3			1	19			16	3	125				1								4	1	1,434	.31	.18	Welders and Flame Cutters
102	4,766	201	142	74	5	130	8	1,299	260	764	147	61	29	14	46	54	1,953	12	27	183	658	130	43	817	127	12	450	37	9	25	36	10	10	196	20	36,959	7.90	8.20	Other Operatives
66	385	321	23	8		11	5	22	81	7	3	4	1		12	32	99	234	129	17	319	1	28	21	11	5	21	39	27	22	24		16	6,922	7	9,539	2.04	1.62	PROTECTIVE SERVICE WKRS.
62	1,930	54	228	178	11	39	4	284	594	134	37	23	5	189	18,710	223	385	257	4,498	12	676	2	6,534	15	5,221	10,180	551	1,053	608	805	1,738	23	117	931	59	57,398	12.27	14.96	SERVICE WORKERS, EXCEPT PROTECTIVE
	3		5						41					1	7	6			4					3,643			5	1		2	5			6		3,730	.80	1.32	Barbers, Beauticians, Manicurists
	582	4	15	1										8	3,048	7		2	4				592					21	57	79	155			55	2	4,762	1.02	1.30	Cooks, except Private Family
12	3	4		16		4		2	99	7	3				2	13	34	26	949		2		152	1			2	2	3	5	21	1							
49	124	32	157	132	5	31	3	124	248	88	28	22	4	46	428	141	307	201	3,061	11	647	2	571	11	121	36	165	114	381	383	166	9	8	70	12	1,507	.32	.43	Elevator Operators
			5	1					1										2				1		2	357	1		1	15	68	1						Janitors, Porters and Charwomen, Cleaning Women
4	414		10	3															17				1,011				1	89	32	51	118		106	608	31	9,296	1.99	2.14	Practical Nurses
7	1	604	14	36	25	4	6	4	1	122	102	39	6	1	1	128	11,885	41	461	1	25		4,207	3	1,454	9,787	377	826	134	270	1,205	12	3	9	3	14,141	3.02	3.01	Waiters, Waitresses and Bartenders
05	2,702	7,082	266	69	42	8	831	71	285	170	29	64	59	37	34	70	2,848	14	186	281	123	48	30	95	8	96	36	359	32	46	69	3	232	1,247	56	27,925	5.97	5 85	Other Service Workers
10	18	55	21	21	44	7	18		35	9	20	11	12	2	1	24	107	36	23	6	26	1	9	5	1	3	8	12	22	14	19	1	26	113	250	1,254	.27	.76	LABORERS
																																						OCCUPATION NOT REPORTED

CHART III--OCCUPATIONS OF EMPLOYED PERSONS DISTRIBUTED ACCORDING TO I

	Total Employment	Per Cent of Employment	EXTRACTION INDUSTRIES				CONVERSION INDUSTRIES				DISTRIBUTI		
			Agriculture, Forestry, Fishing .36%		Mining (Coal, Metal, Oil, Stone, Gravel) .13%		Construction 5.14%		Manufacturing 17.56%		Transportation, Communication and Utilities 14.69%		W Re
			Total Employed	% of Industry	Total Employed	% of Industry	Total Employed	% of Industry	Total Employed	% of Industry	Total Employed	% of Industry	Tota Emp ploye
TOTAL	467,800	100.00	1,700		600		24,000		82,000		68,600		134,70
PROFESSIONAL AND SEMI-PROFESSIONAL WORKERS	37,760	8.07	51	3.00	144	24.00	963	4.01	3,112	3.80	2,289	3.34	2,02
Actors and Actresses	171	.04									7	.01	
Architects	307	.07	4	.24			48	.20	16	.02	9	.01	
Artists and Art Teachers	1,228	.26							115	.14	4	.01	7
Authors, Editors and Reporters	1,310	.28							743	.91	42	.06	
Chemists, Assayers and Metallurgists	607	.13	1	.06	12	2.00			316	.39	21	.03	4
Clergymen	817	.17											
Dentists	1,005	.21											
Civil Engineers	1,241	.27	1	.06	8	1.33	489	2.04	58	.07	129	.19	1
Electrical Engineers	742	.16			4	.67	31	.13	101	.12	484	.71	1
Mechanical Engineers	887	.19			7	1.17	63	.26	367	.45	123	.18	11
Other Technical Engineers	697	.15			89	14.83	17	.07	767	.33	35	.05	3
Lawyers and Judges	2,777	.59			3	.50			20	.03	35	.05	7
Librarians	212	.05							3		1		
Musicians and Music Teachers	1,453	.31									85	.12	10
Osteopaths	51	.01											
Pharmacists	810	.17							1		1		79
Physicians and Surgeons	2,299	.49			2	.33					4	.01	
Social and Welfare Workers	976	.21									1		
Teachers, including County Agents	6,649	1.42									8	.01	
Trained Nurses and Student Nurses	4,892	1.05							3		49	.07	
Veterinarians	35	.01											
Other Professional Workers	1,489	.32	22	1.29	3	.50	20	.08	124	15	94	.14	12
Dancers, Showmen and Athletes	413	.09									7	.01	
Designers	472	.10							221	.27	1		
Draftsmen	1,080	.23	1	.06	7	1.17	103	.43	387	.47	116	.17	
Surveyors	211	.04	1	.06	7	1.17	63	.26	7	.01	19	.03	
Other Semi-Professional Workers	4,929	1.05	21	1.24	2	.33	129	.54	363	.44	1,014	1.48	4
PROPRIETORS, MANAGERS AND OFFICIALS	55,141	11.79	299	17.59	87	14.50	1,608	6.70	5,219	6.36	5,145	7.50	26,75
CLERICAL, SALES AND KINDRED WORKERS	150,915	32.26	58	3.41	172	28.67	963	4 01	18,795	22.92	20,641	30.09	60,94
CLERICAL WORKERS	94,993	20.31	43	2.53	165	27.50	860	3.58	13,694	16 70	20,057	29.24	20,82
Baggagemen, Express Mess., Ry. Mail Clerks	434	.09									121	.18	
Bookkeepers, Accountants, Cashiers, Ticker Agents	17,974	3.84	17	1.00	39	6.50	276	1.15	2,420	2.95	2,875	4.19	6,48
Mail Carriers	2,187	.47											
Shipping and Receiving Clerks	3,564	.76	1	.06			7	.03	1,424	1.74	329	.48	1,70
Stenos, Typists, Secretaries	21,331	4.56	11	.65	3	.50	219	.91	2,661	3.24	2,063	3.01	4,39
Telegraph Operators	870	.19			1	.17			14	.02	800	1.16	
Telephone Operators	3,921	.84			2	.33			72	.09	3,183	4.64	15
Other Clerical Workers	44,712	9.56	14	.82	120	20.00	358	1.49	7,103	8.66	10,686	15.58	8,07
SALES WORKERS	55,922	11.95	15	.88	7	1.17	103	.43	5,101	6.22	584	.85	40,12
Insurance Salesmen and Agents	5,538	1.18											
Real Estate Salesmen and Brokers	2,490	.53											
Other Sales Workers	47,894	10.24	15	.88	7	1.17	103	.43	5,101	6.22	584	.85	40,11
CRAFTSMEN, FOREMEN, KINDRED	57,248	12.24	10	.59	23	3.83	16,701	69.59	20,784	25.35	4,709	6.87	6,82
Bakers	1,604	.34							537	.65	17	03	1,01
Blacksmiths, Forgemen and Hammermen	719	.15	1	.06	1	.17	27	.11	224	.27	47	.07	
Boilermakers	410	.09					9	.04	324	.40	70	.10	
Cabinet and Patternmakers	1,468	.31					27	.11	1,291	1.57	11	.02	8
Carpenters	8,098	1.73	1	.06	1	.17	6,074	25.31	1,458	1.78	246	.36	9
Compositors and Typesetters	1,944	.42							1,823	2.22	4	.01	1
Electricians	2,418	.52			2	.33	806	3.36	755	.92	368	.54	17
Foremen (oee)	4,465	.95	3	.18	5	.83	674	2.81	1,722	2.10	1,066	1.55	55
Inspectors (nec)	512	.11			1	.17	60	.25	78	.10	258	.38	6
Locomotive Engineers	202	.04									202	.29	
Locomotive Firemen	130	.03									130	.19	
Machinists, Millwrights, Toolmakers	5,174	1.11			1	.17	51	.21	4,543	5.54	317	.46	9
Masons, Tilesetters and Stonecutters	1,260	.27					1,177	4.90	47	.06	4	.01	1
Mechanics and Repairmen	7,252	1.55	2	.12	2	.33	346	1.44	1,212	1.48	1,242	1.81	1,16
Molders, Metal	702	.15							696	.85	2		
Painters (Const.), Paperhangers Glaziers	5,059	1.08					3,561	14.84	525	.64	104	.15	9
Plasterers, Cement Finishers	994	.21					984	4.10	4				
Plumbers, Gas and Steamfitters	2,350	.50					1,512	6.30	595	.73	111	.16	9
Printing Craftsmen	1,485	.32							1,392	1.70	2		
Rollers and Roll Hands, Metal	34	.01							34	.04			
Roofers and Sheetmetal Workers	1,440	.31					508	2.12	855	1.04	32	.05	1
Shoemakers and Repairers (Not in Factory)	620	.13											4
Stationary Engineers	1,435	.31	1	.06	7	1.17	94	.39	425	.52	312	.45	11
Craanemen, Hoistmen and Coost. Machine Operators	903	.19			2	.33	481	2.00	277	.34	100	.15	2

CHART IV—FORECAST OF THE 1960 DISTRIBUTION OF WORKERS IN SAN F

		% of Total Employed	% of Increase (Decrease)	EXTRACTION INDUSTRIES		CONVERSION INDUSTRIES		DIST
				Agriculture, Forestry and Fishing 10.9%	Mining (Coal, Metal, Oil, Stone, Gravel) 15.8%	Construction 5.2%	Manufacturing 5.3%	Transport Communi and Util 2.3%
TOTAL EMPLOYED	505,100	100.00	8.00	.3% 1,515	.1% 505	5.0% 25,255	17.1% 86,372	13.9%
PROFESSIONAL AND SEMI-PROFESSIONAL WORKERS	42,242	8.36	11.9	45	121	1,013	3,282	
Actors and Actresses	196	.04	14.6					
Architects	328	.06	6.8	3		50	17	
Artists and Art Teachers	1,394	.28	13.5				121	
Authors, Editors and Reporters	1,425	.28	8.8				786	
Chemists, Assayers and Metallurgists	650	.13	7.1	1	10		337	
Clergymen	935	.18	14.4					
Dentists	1,151	.23	14.5					
Civil Engineers	1,335	.26	7.6	1	7	515	60	
Electrical Engineers	768	.15	3.5		3	33	104	
Mechanical Engineers	948	.19	6.9		6	66	389	
Other Technical Engineers	746	.15	7.0		75	18	285	
Lawyers and Judges	3,166	.63	14 0		2		26	
Librarians	232	.05	9.4					
Musicians and Music Teachers	1,644	.33	13.1					
Osteopaths	57	.01	11.8					
Pharmacists	884	.17	9.1					
Physicians and Surgeons	2,626	.52	14.2		2			
Social and Welfare Workers	1,087	.22	11.4					
Teachers, including County Agents	7,612	1.51	14.5					
Trained Nurses and Student Nurses	5,579	1.10	14.0					
Veterinarians	38	.01	8.6					
Other Professional Workers	1,644	.32	10.4	19	2	20	129	
Dancers, Showmen and Athletes	469	.09	13.6					
Designers	514	.10	8.9				233	
Draftsmen	1,169	.23	8.2	1	6	109	406	
Surveyors	231	.05	9.5	1	6	66	9	
Other Semi-Professional Workers	5,414	1.07	9.8	19	2	136	380	
PROPRIETORS, MANAGERS AND OFFICIALS	59,847	11.85	8.5	267	73	1,692	5,493	
CLERICAL, SALES AND KINDRED WORKERS	163,329	32.34	8.2	52	145	1,013	19,797	
CLERICAL WORKERS	102,458	20.29	7.9	38	139	904	14,424	
Baggagemen, Express Mess., Ry. Mail Clerks	473	.09	9.0					
Bookkeepers, Accountants, Cashiers, Ticket Agents	19,404	3.84	8.0	15	33	290	2,548	
Mail Carriers	2,430	.48	11.1					
Shipping and Receiving Clerks	3,812	.76	7.0	1		8	1,503	
Stenos, Typists, Secretaries	23,277	4.61	9.1	10	2	230	2,798	
Telegraph Operators	890	.18	2.3		1		17	
Telephone Operators	4,071	.81	3.8		2		78	
Other Clerical Workers	48,101	9.52	7.6	12	101	376	7,480	
SALES WORKERS	60,871	12.05	8.8	14	6	109	5,373	
Insurance Salesmen and Agents	6,183	1.22	11.6					
Real Estate Salesmen and Agents	2,793	.55	12.2					
Other Sales Workers	51,895	10.28	8.4	14	6	109	5,373	
CRAFTSMEN, FOREMEN, KINDRED	61,026	12.08	6.6	9	19	17,575	21,895	
Bakers	1,725	.34	7.5				561	
Blacksmiths, Forgemen and Hammermen	795	.16	10.6	1	1	28	233	
Boilermakers	432	.08	5.4			10	346	
Cabinet and Patternmakers	1,547	.31	5.4			28	1,356	
Carpenters	8,538	1.69	5.4	1	1	6,392	1,537	
Compositors and Typesetters	2,049	.40	5.4				1,917	
Electricians	2,571	.51	6.3		1	849	795	
Foremen (nec)	4,706	.93	5.4	2	4	710	1,814	
Inspectors (nec)	552	.11	7.8		1	63	86	
Locomotive Engineers	204	.04	1.0					
Locomotive Firemen	134	.03	3.1					
Machinists, Millwrights, Toolmakers	5,441	1.08	5.2		1	53	4,785	
Masons, Tilesetters and Stonecutters	1,328	.26	5.4			1,237	52	
Mechanics and Repairmen	7,918	1.57	9.2	2	1	364	1,278	
Molders, Metal	738	.14	5.1				734	
Painters (Constr.), Paperhangers Glaziers	5,388	1.07	6.5			3,748	553	
Plasterers, Cement Finishers	1,043	.21	4.9			1,035		
Plumbers, Gas and Steamfitters	2,481	.49	5.6			1,591	631	
Printing Craftsmen	1,563	.31	5.3				1,468	
Rollers and Roll Hands, Metal	35	.01	2.9				35	
Roofers and Sheetmetal Workers	1,523	.30	5.8			535	898	
Shoemakers and Repairers (Not in Factory)	689	.14	11.1					
Stationary Engineers	1,534	.30	6.9	1	6	98	449	
Craftsmen, Hoistmen and Const. Machine Operators	954	.19	5.6		2	505	294	
Structural and Ornamental Metal Workers	839	.16	4.7			225	605	